GenCore version 4.5
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OM nucleic - nucleic search, using sw model

Run on: June 30, 2002, 13:46:02 ; Search time 2325.7 Seconds
(without alignments)
1393.051 Million cell updates/sec

Title: US-09-303-518D-463
Perfect score: 1887
Sequence: 1 ttgggcatttcccgcaaaat.....catatcccatttatgaatag 1887

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 1736436 seqs, 858457221 residues

Total number of hits satisfying chosen parameters: 3472872

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 100 summaries

Database : N_Geneseq_032802:*
1: /SIDS1/gcgdata/geneseq/geneseqn-embl/NA1980.DAT:*
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4: /SIDS1/gcgdata/geneseq/geneseqn-embl/NA1983.DAT:*
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23: /SIDS1/gcgdata/geneseq/geneseqn-embl/NA2001B.DAT:*
24: /SIDS1/gcgdata/geneseq/geneseqn-embl/NA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1884.4	99.9	1887	20	AAZ12173	Neisseria gonorrho
2	1427.8	75.7	1827	21	AAF21588	N. meningitidis pa
3	1427.8	75.7	1827	21	AAA81303	N. meningitidis pa
4	1427.8	75.7	349980	21	AAF21608	Neisseria meningit
5	1231.2	65.2	1671	20	AAZ12174	Neisseria meningit
6	1198.8	63.5	2304	22	AAS43903	Neisseria meningit
7	1198.8	63.5	2304	22	AAD17056	N. meningitidis st
8	1196	63.4	2028	22	AAS43881	Neisseria meningit
9	1196	63.4	2028	22	AAD17046	N. meningitidis st
10	1196	63.4	4425	22	AAS43874	Neisseria meningit
11	1196	63.4	4425	22	AAD17039	N. meningitidis st
12	1194	63.3	2019	22	AAS43894	Neisseria meningit
13	1194	63.3	2019	22	AAD17047	N. meningitidis st
14	1194	63.3	2256	22	AAS43896	Neisseria meningit
15	1194	63.3	2256	22	AAS43900	Neisseria meningit
16	1194	63.3	2256	22	AAD17049	N. meningitidis st
17	1194	63.3	2256	22	AAD17053	N. meningitidis st
18	1194	63.3	2421	22	AAS43895	Neisseria meningit
19	1194	63.3	2421	22	AAS43897	Neisseria meningit
20	1194	63.3	2421	22	AAD17048	N. meningitidis st
21	1194	63.3	2421	22	AAD17050	N. meningitidis st
22	754	40.0	837096	21	AAA81489	N. meningitidis pa
23	642.8	34.1	683	20	AAZ12172	Neisseria meningit
c 24	641.8	34.0	684	21	AAA81504	N. meningitidis pa
c 25	396	21.0	396	21	AAZ54162	Neisseria gonorrhe
c 26	385.4	20.4	492	21	AAZ54163	Neisseria meningit
c 27	384.8	20.4	396	21	AAZ54164	Neisseria meningit
28	333.4	17.7	380	21	AAA81377	N. meningitidis Me
29	322.4	17.1	381	20	AAZ12171	Neisseria meningit
30	290.4	15.4	1731	21	AAZ54260	Neisseria gonorrhe
31	283.4	15.0	1404	21	AAZ54261	Neisseria meningit
c 32	283.4	15.0	25509	21	AAA81467	N. meningitidis pa
c 33	283.4	15.0	349980	21	AAF21607	Neisseria meningit
34	269.6	14.3	1497	21	AAZ54262	Neisseria meningit
35	119.8	6.3	1497	20	AAZ12046	Neisseria gonorrho
36	119.8	6.3	1497	21	AAZ53469	Neisseria gonorrhe
37	119.8	6.3	3287	18	AAT70386	Neisseria adhesion
38	108.2	5.7	1155	21	AAZ53471	Neisseria meningit
39	105.2	5.6	1449	20	AAZ12045	Neisseria meningit
40	105	5.6	1452	20	AAZ12044	Neisseria meningit
41	105	5.6	1452	21	AAZ53470	Neisseria meningit
42	105	5.6	92934	21	AAA81473	N. meningitidis pa
43	105	5.6	172325	21	AAF21613	Neisseria meningit
44	96	5.1	375	20	AAZ12043	Neisseria meningit
45	96	5.1	375	21	AAA81340	N. meningitidis Me
c 46	84	4.5	732	21	AAA81804	N. meningitidis pa
47	45.2	2.4	390	13	AAQ21833	Randomising oligon
48	45.2	2.4	390	14	AAQ36859	PCR primer for 5'
49	45.2	2.4	390	22	AAF76910	Sequence containin
50	41.8	2.2	810	12	AAQ13853	N-acetyl mannosami
51	40.6	2.2	349980	21	AAF21611	Neisseria meningit
52	40.2	2.1	695	22	AAF68020	Corynebacterium gl
53	40.2	2.1	4560	22	AAH65909	C glutamicum codin
54	40.2	2.1	349980	22	AAH68526	C glutamicum codin
55	40.2	2.1	349980	22	AAH68527	C glutamicum codin
56	40.2	2.1	349980	22	AAH68530	C glutamicum codin
c 57	39.2	2.1	15768	24	ABL33170	Human immune syste
c 58	39.2	2.1	114955	20	AAX53491	Human adenosine A1
59	38.8	2.1	4819	24	AAS20020	Genomic DNA encodi
c 60	38.6	2.0	4403765	22	AAI99683	Mycobacterium tube
61	38.2	2.0	400	19	AAV64545	M. tuberculosis im
62	38.2	2.0	400	19	AAV44436	Mycobacterium tube
63	38.2	2.0	400	20	AAZ19346	M. tuberculosis an
64	38.2	2.0	400	20	AAZ19134	M. tuberculosis re
65	38.2	2.0	1431	22	AAH67910	C glutamicum codin
66	38.2	2.0	1554	22	AAF72228	Corynebacterium gl
67	38.2	2.0	1930	22	AAH53021	S. epidermidis ope
68	38.2	2.0	3073	22	AAH54182	S. epidermidis gen
69	38.2	2.0	6741	21	AAA10595	Gene encoding a su
70	38.2	2.0	349980	22	AAH68533	C glutamicum codin
c 71	37.6	2.0	574	22	ABA63420	Human foetal liver
c 72	37.6	2.0	574	22	ABA75827	Human foetal liver
c 73	37.6	2.0	574	22	ABA30621	Probe #9087 for ge
c 74	37.6	2.0	574	22	ABA40396	Probe #18862 for g
c 75	37.6	2.0	574	22	AAK11953	Human brain expres
c 76	37.6	2.0	574	22	AAK24508	Human brain expres
c 77	37.6	2.0	574	22	AAK37658	Human bone marrow
c 78	37.6	2.0	574	22	AAK50497	Human bone marrow
c 79	37.6	2.0	574	22	AAI18415	Probe #8348 for ge
c 80	37.6	2.0	574	22	AAI27510	Probe #17443 for g
c 81	37.6	2.0	574	22	AAI43531	Probe #12217 used
c 82	37.6	2.0	574	22	AAI56482	Probe #25168 used

	83	37.6	2.0	13144	12	AAQ13288	P.denitrificans ge
c	84	37.2	2.0	3024	22	AAK90501	Human digestive sy
	85	37.2	2.0	10732	21	AAA10594	Gene encoding a su
	86	37	2.0	882	19	AAV64512	M. tuberculosis im
	87	37	2.0	882	19	AAV44403	Mycobacterium tube
	88	37	2.0	882	20	AAZ19313	M. tuberculosis an
	89	37	2.0	882	20	AAZ19101	M. tuberculosis re
	90	37	2.0	1245	23	AAS54156	Pseudomonas aerugi
	91	37	2.0	12588	15	AAQ63293	Sequence encoding
	92	37	2.0	4403765	22	AAI99683	Mycobacterium tube
c	93	37	2.0	4411529	22	AAI99682	Mycobacterium tube
	94	36.8	2.0	1161	15	AAQ63295	Consensus sequence
c	95	36.8	2.0	6702	24	ABL33461	Human immune syste
c	96	36.8	2.0	6849	22	AAK72645	Human immune/haema
c	97	36.8	2.0	15896	21	AAA81517	N. meningitidis pa
c	98	36.8	2.0	349980	21	AAF21608	Neisseria meningit
c	99	36.8	2.0	349980	21	AAF21609	Neisseria meningit
c	100	36.8	2.0	1437668	21	AAA81490	N. meningitidis B

ALIGNMENTS

```
RESULT  1
AAZ12173
ID   AAZ12173 standard; DNA; 1887 BP.
XX
AC   AAZ12173;
XX
DT   08-OCT-1999  (first entry)
XX
DE   Neisseria gonorrhoeae complete ORF46 sequence.
XX
KW   Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW   treatment; Neisseria infection; meningitis; septicaemia; gonorrhea; ss.
XX
OS   Neisseria gonorrhoeae.
XX
PN   WO9924578-A2.
XX
PD   20-MAY-1999.
XX
PF   09-OCT-1998;   98WO-IB01665.
XX
PR   01-SEP-1998;   98GB-0019016.
PR   06-NOV-1997;   97GB-0023516.
PR   14-NOV-1997;   97GB-0024190.
PR   18-NOV-1997;   97GB-0024386.
PR   27-NOV-1997;   97GB-0025158.
PR   10-DEC-1997;   97GB-0026147.
PR   14-JAN-1998;   98GB-0000759.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Grandi G,  Masignani V,  Pizza M,  Rappuoli R,  Scarlato V;
XX
DR   WPI; 1999-327407/27.
DR   P-PSDB; AAY38730.
XX
PT   Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
PT   diagnosis, treatment and prevention of infection
XX
PS   Claim 9; Page 274-275; 524pp; English.
XX
CC   Nucleotide sequences AAZ11972-Z12358 represent open reading frames
CC   (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode
CC   antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their
CC   fragments, their nucleic acids and antibodies are used for diagnosis,
CC   prevention (as vaccines) or treatment of Neisseria infections,
CC   such as meningitis, septicaemia and gonorrhea. Both organisms
CC   are closely related. Fragments of the nucleic acids are useful
CC   as hybridisation probes and antisense reagents.
XX
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SQ   Sequence 1887 BP; 555 A; 468 C; 493 G; 370 T; 1 other;

  Query Match             99.9%;  Score 1884.4;  DB 20;  Length 1887;
  Best Local Similarity   99.9%;  Pred. No. 0;
  Matches 1886;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 60
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Db       1 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 60

Qy      61 catgcacacgcctcagatttggcaaacgatccctttatccggcaggttctcgaccgtcag 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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Qy     121 catttcgaacccgacgggaaataccacctattcggcagcagggggggagcttgccnagcgc 180
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Qy     241 caggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaa 300
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Qy     301 ttccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtccc 360
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Qy     481 agctacgacataaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagc 540
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Qy     601 ggcgacggattcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgcc 660
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Qy     661 gccgaagccttcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaa 720
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Qy     721 attgtcggcgcaggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatg 780
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Qy     781 cacggcttgggtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagat 840
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Qy     841 atggcgcaactcaaagactatgccgcagcagccatccgcgattgggcagtccaaaacccc 900
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Db     841 atggcgcaactcaaagactatgccgcagcagccatccgcgattgggcagtccaaaacccc 900

Qy     901 aatgccgcacaaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaa 960
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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Qy   1081 gccgatgcggcatacgccaaatacccgtccccttaccattcccgaaatatccgttcaaac 1140
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Qy   1141 ttggagcagcgttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggc 1200
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Qy   1201 aaaaatgtcaaactggcagaccaacgccacccgaagacaggcgtactgtttgacggtaaa 1260
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Qy   1261 gggtttccgaattttgagaagcacgtgaaatatgatacgaagctcgatattcaagaatta 1320
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Qy   1801 aataaatggcagggtacaagtaaatcgggtattaaaatagaaggatttaccgaacctaat 1860
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Qy   1861 agaacagcatatcccatttatgaatag 1887
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RESULT   2
AAF21588
ID   AAF21588 standard; DNA; 1827 BP.
XX
AC   AAF21588;
XX
DT   13-MAR-2001  (first entry)
XX
DE   N. meningitidis partial DNA sequence orf46-2.seq SEQ ID NO:88.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; immunogenic; vaccine;
KW   diagnosis; antigen; detection; infection; gene therapy; antibacterial;
KW   ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO200066791-A1.
XX
PD   09-NOV-2000.
XX
PF   08-MAR-2000; 2000WO-US05928.
XX
PR   30-APR-1999;   99US-0132068.
PR   08-OCT-1999;   99WO-US23573.
PR   28-FEB-2000; 2000GB-0004695.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Pizza M,  Hickey E,  Peterson J,  Tettelin H,  Venter JC,  Masignani V;
PI   Galeotti C,  Mora M,  Ratti G,  Scarselli M,  Scarlato V,  Rappuoli R;
PI   Frazer CM,  Grandi G;
XX
DR   WPI; 2000-647603/62.
DR   P-PSDB; AAB58593.
XX
PT   Neisseria meningitidis B full length genome sequence and open reading
PT   frames are used to detect, treat and prevent Neisserial infections -
XX
PS   Example 1; Page 114-115; 692pp; English.
XX
CC   The present invention describes the full length genome of
CC   Neisseria meningitidis B (NMB). The sequences in AAF21544 and AAF21607
CC   to AAF21613 represent fragments of the NMB genomic sequence, as the
CC   sequence was too long to go in a record on its own it was split into 8
CC   sequences which overlap each other at the beginning and end of each
CC   sequence by 49980 bp (i.e. the last 49980 bp of AAF21544 is repeated at
CC   the beginning  of AAF21607, the last 49980 bp of AAF21607 are repeated at
CC   the beginning of AAF21608, and so on). AAF21545 to AAF21588 encode the
CC   Neisseria proteins given in AAB58550 to AAB58593, and AAF21589 to
CC   AAF21606 represent PCR primers which are used in the exemplification of
CC   the present invention. The NMB genome and fragments from it have
CC   antibacterial activity, and can be used in vaccines and gene therapy.
CC   Neisseria nucleic acids, proteins and/or antibodies which binds to the
CC   proteins can be used in compositions for treating or preventing infection
CC   due to Neisserial bacteria or as a diagnostic reagent for detecting the
CC   presence of Neisserial bacteria or of antibodies raised to Neisserial
CC   bacteria. Computers, computer memory, computer storage medium or computer
CC   databases can be used in a search to identify open reading frames (ORFs)
CC   or coding sequences within the NMB genome. The DNA sequences provide
CC   further opportunities to find antigenic or immunogenic proteins which are
CC   more effective in vaccines than the outer membrane proteins currently
CC   used.
XX
SQ   Sequence 1827 BP; 539 A; 446 C; 454 G; 387 T; 1 other;


  Query Match             75.7%;  Score 1427.8;  DB 21;  Length 1827;
  Best Local Similarity   95.6%;  Pred. No. 0;
  Matches 1468;  Conservative    0;  Mismatches   68;  Indels    0;  Gaps    0;

Qy       1 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 60

Qy      61 catgcacacgcctcagatttggcaaacgatccctttatccggcaggttctcgaccgtcag 120
           |||||||||||||||||||||||||||||| | ||||||||||||||||||||||||||
Db      61 catgcacacgcctcagatttggcaaacgattcttttatccggcaggttctcgaccgtcag 120

Qy     121 catttcgaacccgacgggaaataccacctattcggcagcaggggggagcttgccnagcgc 180
           |||||||||||||||||||||||||||||||||||||||||||||||| |||||| |||||
Db     121 catttcgaacccgacgggaaataccacctattcggcagcaggggggaacttgccgagcgc 180
```

```
Qy    181 aacggccatatcggattgggaaacatacaaagccatcagttgggccacctgatgattcaa 240
          | ||||||||||||||||||| |||||||||||||||||||| ||||||||||||||
Db    181 agcggccatatcggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaa 240

Qy    241 caggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaa 300
          ||||||||| || ||||||||||||||||||||||||||||||||||||||||||| ||
Db    241 caggcggccattaaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaa 300

Qy    301 ttccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtccc 360
           |||||| |||||||||||||||||||||||||||||||||| ||||||||||||||||
Db    301 gtccattccccttcgacaaccatgcctcacattccgattctgatgaagccggtagtccc 360

Qy    361 gttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccgac 420
          |||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||
Db    361 gttgacggatttagcctttaccgcatccattgggacggatacgaacaccatcccgccgac 420

Qy    421 ggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatac 480
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    421 ggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatac 480

Qy    481 agctacgacataaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagc 540
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    481 agctacgacataaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagc 540

Qy    541 accggacaacggcttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagta 600
          |||||||||||||||||||||||||||||||||||   ||||||||||||||||||||
Db    541 accggacaacggcttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagta 600

Qy    601 ggcgacggattcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgcc 660
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    601 ggcgacggattcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgcc 660

Qy    661 gccgaagccttcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaa 720
          |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Db    661 gccgaagccttcaacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaa 720

Qy    721 attgtcggcgcaggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtccatg 780
          |||||||||||||||||||||||||||| ||||||||||||||||||||||||||||||
Db    721 attgtcggcgcaggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatg 780

Qy    781 cacggcttgggtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagat 840
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    781 cacggcttgggtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagat 840

Qy    841 atggcgcaactcaaagactatgccgcagcagccatccgcgattgggcagtccaaaacccc 900
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    841 atggcgcaactcaaagactatgccgcagcagccatccgcgattgggcagtccaaaacccc 900

Qy    901 aatgccgcacaaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaa 960
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    901 aatgccgcacaaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaa 960

Qy    961 gggattggagctgtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaag 1020
          |||||||||||||| ||||||||||||||||||||||||||||||||||| |||||
Db    961 gggattggagctgttcggggaaaatacggcttgggcggcatcacggcacatcctatcaag 1020

Qy   1021 cggtcgcagatgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaatttt 1080
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1021 cggtcgcagatgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaatttt 1080

Qy   1081 gccgatgcggcatacgccaaatacccgtcccccttaccattcccgaaatatccgttcaaac 1140
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1081 gccgatgcggcatacgccaaatacccgtcccccttaccattcccgaaatatccgttcaaac 1140

Qy   1141 ttggagcagcgttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggc 1200
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1141 ttggagcagcgttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggc 1200

Qy   1201 aaaaatgtcaaactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaa 1260
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1201 aaaaatgtcaaactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaa 1260

Qy   1261 gggtttccgaattttgagaagcacgtgaaatatgatacgaagctcgatattcaagaatta 1320
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1261 gggtttccgaattttgagaagcacgtgaaatatgatacgaagctcgatattcaagaatta 1320

Qy   1321 tcgggggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggtt 1380
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1321 tcgggggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggtt 1380

Qy   1381 gataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaacg 1440
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1381 gataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaata 1440

Qy   1441 agaagaaggagtcagagtagtcagtttaaagcccatgcgcaacgagaatgggaaaataaa 1500
          || |   | | |   |  ||| | ||||     ||||| |||| |||  |||||| |||
Db   1441 aggaacggtaatataaacagtaactttagccaacatgctcaactagagagggaaattaat 1500

Qy   1501 acagggttagattttaatcattttataggtggtgat 1536
          | |     |  |    || |  |||    ||  |||
Db   1501 aaactaaaatctgccgatgaaattaattttgcagat 1536
```

RESULT 3
AAA81303
ID AAA81303 standard; DNA; 1827 BP.
XX
AC AAA81303;
XX
DT 04-DEC-2000 (first entry)
XX
DE N. meningitidis partial DNA sequence orf46-2.seq SEQ ID NO:1048.
XX
KW Neisseria meningitidis; Neisseria gonorrheae; genome; immunogenic;
KW antigen; vaccine; diagnosis; infection; antibacterial; identification;
KW Meningococcus B; MenB; ds.
XX
OS Neisseria meningitidis.
XX
PN WO200022430-A2.
XX
PD 20-APR-2000.
XX
PF 08-OCT-1999; 99WO-US23573.
XX
PR 09-OCT-1998; 98US-0103794.
PR 30-APR-1999; 99US-0132068.
XX
PA (CHIR) CHIRON CORP.
XX
PI Frazer CM, Hickey E, Peterson J, Tettelin H, Venter JC;
PI Masignani V, Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V;
PI Rappuoli R, Pizza M;
XX
DR WPI; 2000-318079/27.
DR P-PSDB; AAB25663.
XX
PT Isolated nucleotide sequences of Neisseria meningitidis which can be
PT used in the diagnosis and treatment of N. meningitidis infection and
PT other Neisserial infections, for example, N.gonorrhoea -
XX
PS Example 1; Page 114; 1760pp; English.
XX
CC The present invention describes methods of obtaining immunogenic
CC proteins from Neisseria genomic sequences. AAA81453 to AAA82414
CC represent specifically claimed Neisseria meningitidis genomic DNA
CC sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent
CC Neisseria DNA sequences and their corresponding proteins; AAA81254 to
CC AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the
CC isolation of Neisseria meningitidis DNA sequences; and AAA81322 to
CC AAA81452 represent Neisseria meningitidis MenB polynucleotide ORF
CC sequences, which are all used in the exemplification of the present
CC invention. The nucleic acid sequences, protein sequences, and antibodies
CC against them, can be used in the manufacture of a composition. The
CC composition can be used as a medicament (or in the manufacture of a
CC medicament) for treating, preventing or diagnosing infection due to

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CC   Neisserial bacteria. For example, some of the identified proteins could
CC   be components of vaccines against Meningococcus B; against all serotypes;
CC   and/or against all pathogenic Neissariae. Identification of sequences
CC   from the bacterium will also facilitate production of biological probes,
CC   particularly organism-specific probes. Attempts to make efficacious
CC   Meningococcus B vaccines have failed mainly due to antigen tolerance.
CC   Multivalent vaccines have also been tried but none have successfully
CC   overcome antigenic variability. The provision of further, complete
CC   sequences may provide an opportunity to identify secreted or surface
CC   exposed proteins that may be presumed targets for the immune system and
CC   which are not antigenically variable or at least more conserved than
CC   other more variable regions.
XX
SQ   Sequence 1827 BP; 539 A; 446 C; 454 G; 387 T; 1 other;


  Query Match             75.7%;  Score 1427.8;  DB 21;  Length 1827;
  Best Local Similarity   95.6%;  Pred. No. 0;
  Matches 1468;  Conservative    0;  Mismatches   68;  Indels    0;  Gaps    0;

Qy      1 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 60

Qy     61 catgcacacgcctcagatttggcaaacgatccctttatccggcaggttctcgaccgtcag 120
          |||||||||||||||||||||||||| | ||||||||||||||||||||||||||||||||
Db     61 catgcacacgcctcagatttggcaaacgattcttttatccggcaggttctcgaccgtcag 120

Qy    121 catttcgaacccgacgggaaataccacctattcggcagcagggggggagcttgccnagcgc 180
          |||||||||||||||||||||||||||||||||||||||||||||||r ||||| |||||
Db    121 catttcgaacccgacgggaaataccacctattcggcagcagggggggaacttgccgagcgc 180

Qy    181 aacggccatatcggattgggaaacatacaaagccatcagttgggccacctgatgattcaa 240
          | |||||||||||||||||||| |||||||||||||||||||| ||||||||||||||||
Db    181 agcggccatatcggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaa 240

Qy    241 caggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaa 300
          ||||||||| || |||||||||||||||||||||||||||||||||||||||||||| ||
Db    241 caggcggccattaaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaa 300

Qy    301 ttccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtccc 360
          |||||||| |||||||||||||||||||||||||||||||||| |||||||||||||||
Db    301 gtccattcccccttcgacaaccatgcctcacattccgattctgatgaagccggtagtccc 360

Qy    361 gttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccgac 420
          |||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||
Db    361 gttgacggatttagcctttaccgcatccattgggacggatacgaacaccatcccgccgac 420

Qy    421 ggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatac 480
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    421 ggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatac 480

Qy    481 agctacgacataaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagc 540
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    481 agctacgacataaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagc 540

Qy    541 accggacaacggcttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagta 600
          |||||||||||||||||||||||||||||||||||   ||||||||||||||||||||
Db    541 accggacaacggcttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagta 600

Qy    601 ggcgacggattcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgcc 660
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    601 ggcgacggattcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgcc 660

Qy    661 gccgaagccttcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaa 720
          |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Db    661 gccgaagccttcaacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaa 720

Qy    721 attgtcggcgcaggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatg 780
          |||||||||||||||||||||||||| |||||||||||||||||||||||||||||||||
Db    721 attgtcggcgcaggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatg 780

Qy    781 cacggcttgggtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagat 840
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    781 cacggcttgggtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagat 840

Qy    841 atggcgcaactcaaagactatgccgcagcagccatccgcgattgggcagtccaaaacccc 900
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    841 atggcgcaactcaaagactatgccgcagcagccatccgcgattgggcagtccaaaacccc 900

Qy    901 aatgccgcacaaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaa 960
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    901 aatgccgcacaaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaa 960

Qy    961 gggattggagctgtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaag 1020
          |||||||||||||| |||||||||||||||||||||||||||||||||| |||||
Db    961 gggattggagctgttcggggaaaatacggcttgggcggcatcacggcacatcctatcaag 1020

Qy   1021 cggtcgcagatgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaatttt 1080
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1021 cggtcgcagatgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaatttt 1080

Qy   1081 gccgatgcggcatacgccaaatacccgtccccttaccattcccgaaatatccgttcaaac 1140
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1081 gccgatgcggcatacgccaaatacccgtccccttaccattcccgaaatatccgttcaaac 1140

Qy   1141 ttggagcagcgttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggc 1200
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1141 ttggagcagcgttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggc 1200

Qy   1201 aaaaatgtcaaactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaa 1260
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1201 aaaaatgtcaaactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaa 1260

Qy   1261 gggtttccgaattttgagaagcacgtgaaatatgatacgaagctcgatattcaagaatta 1320
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1261 gggtttccgaattttgagaagcacgtgaaatatgatacgaagctcgatattcaagaatta 1320

Qy   1321 tcgggggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggtt 1380
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1321 tcgggggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggtt 1380

Qy   1381 gataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaacg 1440
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1381 gataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaata 1440

Qy   1441 agaagaaggagtcagagtagtcagtttaaagcccatgcgcaacgagaatgggaaaataaa 1500
          || |   | | |   | ||| | ||||     ||||| |||| ||| |||||| |||
Db   1441 aggaacggtaatataaacagtaactttagccaacatgctcaactagagagggaaattaat 1500

Qy   1501 acagggttagattttaatcattttataggtggtgat 1536
          | |     |  |    || |  |||    ||  |||
Db   1501 aaactaaaatctgccgatgaaattaattttgcagat 1536


RESULT   4
AAF21608
ID   AAF21608 standard; DNA; 349980 BP.
XX
AC   AAF21608;
XX
DT   13-MAR-2001  (first entry)
XX
DE   Neisseria meningitidis B nucleotide sequence SEQ ID NO:109.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; immunogenic; vaccine;
KW   diagnosis; antigen; detection; infection; gene therapy; antibacterial;
KW   ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO200066791-A1.
XX
PD   09-NOV-2000.
XX
PF   08-MAR-2000; 2000WO-US05928.
```

XX
PR 30-APR-1999; 99US-0132068.
PR 08-OCT-1999; 99WO-US23573.
PR 28-FEB-2000; 2000GB-0004695.
XX
PA (CHIR) CHIRON CORP.
PA (GENO-) INST GENOMIC RES.
XX
PI Pizza M, Hickey E, Peterson J, Tettelin H, Venter JC, Masignani V;
PI Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V, Rappuoli R;
PI Frazer CM, Grandi G;
XX
DR WPI; 2000-647603/62.
XX
PT Neisseria meningitidis B full length genome sequence and open reading
PT frames are used to detect, treat and prevent Neisserial infections -
XX
PS Claim 7; Appendix A; 692pp; English.
XX
CC The present invention describes the full length genome of
CC Neisseria meningitidis B (NMB). The sequences in AAF21544 and AAF21607
CC to AAF21613 represent fragments of the NMB genomic sequence, as the
CC sequence was too long to go in a record on its own it was split into 8
CC sequences which overlap each other at the beginning and end of each
CC sequence by 49980 bp (i.e. the last 49980 bp of AAF21544 is repeated at
CC the beginning of AAF21607, the last 49980 bp of AAF21607 are repeated at
CC the beginning of AAF21608, and so on). AAF21545 to AAF21588 encode the
CC Neisseria proteins given in AAB58550 to AAB58593, and AAF21589 to
CC AAF21606 represent PCR primers which are used in the exemplification of
CC the present invention. The NMB genome and fragments from it have
CC antibacterial activity, and can be used in vaccines and gene therapy.
CC Neisseria nucleic acids, proteins and/or antibodies which binds to the
CC proteins can be used in compositions for treating or preventing infection
CC due to Neisserial bacteria or as a diagnostic reagent for detecting the
CC presence of Neisserial bacteria or of antibodies raised to Neisserial
CC bacteria. Computers, computer memory, computer storage medium or computer
CC databases can be used in a search to identify open reading frames (ORFs)
CC or coding sequences within the NMB genome. The DNA sequences provide
CC further opportunities to find antigenic or immunogenic proteins which are
CC more effective in vaccines than the outer membrane proteins currently
CC used.
XX
SQ Sequence 349980 BP; 82523 A; 82940 C; 96712 G; 87805 T; 0 other;

Query Match 75.7%; Score 1427.8; DB 21; Length 349980;
Best Local Similarity 95.6%; Pred. No. 0;
Matches 1468; Conservative 0; Mismatches 68; Indels 0; Gaps 0;

```
Qy      1 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  75614 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 75673

Qy     61 catgcacacgcctcagatttggcaaacgatccctttatccggcaggttctcgaccgtcag 120
          |||||||||||||||||||||||||||||| | ||||||||||||||||||||||||||||
Db  75674 catgcacacgcctcagatttggcaaacgattcttttatccggcaggttctcgaccgtcag 75733

Qy    121 catttcgaacccgacgggaaataccacctattcggcagcagggggagcttgccnagcgc 180
          ||||||||||||||||||||||||||||||||||||||||||||||||| |||||| |||||
Db  75734 catttcgaacccgacgggaaataccacctattcggcagcagggggaacttgccgagcgc 75793

Qy    181 aacggccatatcggattgggaaacatacaaagccatcagttgggccacctgatgattcaa 240
          | |||||||||||||||||| |||||||||||||||||||| ||||||||||||||||
Db  75794 agcggccatatcggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaa 75853

Qy    241 caggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaa 300
          ||||||||| || |||||||||||||||||||||||||||||||||||||||||||| ||
Db  75854 caggcggccattaaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaa 75913

Qy    301 ttccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtccc 360
          ||||||| |||||||||||||||||||||||||||||||||||| ||||||||||||||
Db  75914 gtccattccccccttcgacaaccatgcctcacattccgattctgatgaagccggtagtccc 75973

Qy    361 gttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccgac 420
          |||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||
Db  75974 gttgacggatttagcctttaccgcatccattgggacggatacgaacaccatcccgccgac 76033

Qy    421 ggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatac 480
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76034 ggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatac 76093

Qy    481 agctacgacataaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagc 540
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76094 agctacgacataaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagc 76153

Qy    541 accggacaacggcttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagta 600
          |||||||||||||||||||||||||||||||||||||||||    ||||||||||||||||
Db  76154 accggacaacggcttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagta 76213

Qy    601 ggcgacggattcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgcc 660
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76214 ggcgacggattcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgcc 76273

Qy    661 gccgaagccttcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaa 720
          |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Db  76274 gccgaagccttcaacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaa 76333

Qy    721 attgtcggcgcaggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatg 780
          |||||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Db  76334 attgtcggcgcaggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatg 76393

Qy    781 cacggcttgggtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagat 840
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76394 cacggcttgggtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagat 76453

Qy    841 atggcgcaactcaaagactatgccgcagcagccatccgcgattgggcagtccaaaacccc 900
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76454 atggcgcaactcaaagactatgccgcagccatccgcgattgggcagtccaaaacccc 76513

Qy    901 aatgccgcacaaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaa 960
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76514 aatgccgcacaaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaa 76573

Qy    961 gggattggagctgtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaag 1020
          |||||||||||||| ||||||||||||||||||||||||||||||||||| |||||
Db  76574 gggattggagctgttcggggaaaatacggcttgggcggcatcacggcacatcctatcaag 76633

Qy   1021 cggtcgcagatgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaatttt 1080
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76634 cggtcgcagatgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaatttt 76693

Qy   1081 gccgatgcggcatacgccaaataccgtcccctaccattcccgaaatatccgttcaaac 1140
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76694 gccgatgcggcatacgccaaataccgtcccctaccattcccgaaatatccgttcaaac 76753

Qy   1141 ttggagcagcgttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggc 1200
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76754 ttggagcagcgttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggc 76813

Qy   1201 aaaaatgtcaaactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaa 1260
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76814 aaaaatgtcaaactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaa 76873

Qy   1261 gggtttccgaattttgagaagcacgtgaaatatgatacgaagctcgatattcaagaatta 1320
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76874 gggtttccgaattttgagaagcacgtgaaatatgatacgaagctcgatattcaagaatta 76933

Qy   1321 tcgggggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggtt 1380
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76934 tcgggggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggtt 76993

Qy   1381 gataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaacg 1440
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db  76994 gataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaata 77053

Qy   1441 agaagaaggagtcagagtagtcagtttaaagcccatgcgcaacgagaatgggaaaataaa 1500
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          || |   | | |   |  ||| | ||||     ||||| |||| |||  |||||| |||
Db  77054 aggaacggtaatataaacagtaactttagccaacatgctcaactagagagggaaattaat 77113

Qy   1501 acagggttagattttaatcattttataggtggtgat 1536
          | |     | |    || |  |||    ||  |||
Db  77114 aaactaaaatctgccgatgaaattaattttgcagat 77149


RESULT   5
AAZ12174
ID   AAZ12174 standard; DNA; 1671 BP.
XX
AC   AAZ12174;
XX
DT   08-OCT-1999  (first entry)
XX
DE   Neisseria meningitidis strain A complete ORF46 sequence.
XX
KW   Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW   treatment; Neisseria infection; meningitis; septicaemia; gonorrhea; ss.
XX
OS   Neisseria meningitidis.
XX
PN   WO9924578-A2.
XX
PD   20-MAY-1999.
XX
PF   09-OCT-1998;   98WO-IB01665.
XX
PR   01-SEP-1998;   98GB-0019016.
PR   06-NOV-1997;   97GB-0023516.
PR   14-NOV-1997;   97GB-0024190.
PR   18-NOV-1997;   97GB-0024386.
PR   27-NOV-1997;   97GB-0025158.
PR   10-DEC-1997;   97GB-0026147.
PR   14-JAN-1998;   98GB-0000759.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Grandi G,  Masignani V,  Pizza M,  Rappuoli R,  Scarlato V;
XX
DR   WPI; 1999-327407/27.
DR   P-PSDB; AAY38731.
XX
PT   Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
PT   diagnosis, treatment and prevention of infection
XX
PS   Claim 9; Page 276-277; 524pp; English.
XX
CC   Nucleotide sequences AAZ11972-Z12358 represent open reading frames
CC   (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode
CC   antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their
CC   fragments, their nucleic acids and antibodies are used for diagnosis,
CC   prevention (as vaccines) or treatment of Neisseria infections,
CC   such as meningitis, septicaemia and gonorrhea. Both organisms
CC   are closely related. Fragments of the nucleic acids are useful
CC   as hybridisation probes and antisense reagents.
XX
SQ   Sequence 1671 BP; 484 A; 440 C; 402 G; 345 T; 0 other;


  Query Match             65.2%;  Score 1231.2;  DB 20;  Length 1671;
  Best Local Similarity   96.3%;  Pred. No. 0;
  Matches 1260;  Conservative    0;  Mismatches   49;  Indels    0;  Gaps    0;

Qy       1 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 ttgggcatttcccgcaaaatatcccttattctgtccatactggcagtgtgcctgccgatg 60

Qy      61 catgcacacgcctcagatttggcaaacgatccctttatccggcaggttctcgaccgtcag 120
           |||||||||||||||||||||||||||| | ||||||||||||||||||||||||||||
Db      61 catgcacacgcctcagatttggcaaacgattcttttatccggcaggttctcgaccgtcag 120

Qy     121 catttcgaacccgacgggaaataccacctattcggcagcaggggggagcttgccnagcgc 180
           |||||||||||||||||||||||||||||||||||||||||||||||||||| |||||| |||||
Db     121 catttcgaacccgacgggaaataccacctattcggcagcaggggggaacttgccgagcgc 180

Qy     181 aacggccatatcggattgggaaacatacaaagccatcagttgggccacctgatgattcaa 240
           | ||| ||||||||||||||||||||||||||||||||||||||||| ||||| | || ||
Db     181 agcggtcatatcggattgggaaacatacaaagccatcagttgggcaacctgttcatccag 240

Qy     241 caggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaa 300
           ||||||||| || ||||||||||||||||||||||||||||||||||||||||||||| ||
Db     241 caggcggccattaaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaa 300

Qy     301 ttccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtccc 360
           ||||||| |||||||||||||||||||||||||||||||||||||| ||||||||||||||
Db     301 gtccattcccccttcgacaaccatgcctcacattccgattctgatgaagccggtagtccc 360

Qy     361 gttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccgac 420
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     361 gttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccgac 420

Qy     421 ggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatac 480
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     421 ggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatac 480

Qy     481 agctacgacataaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagc 540
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     481 agctacgacataaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagc 540

Qy     541 accggacaacggcttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagta 600
           |||||||||||||||| |||||||||||||| ||||   ||||||||||||||||||||
Db     541 accggacaacggcttgtcgaccgtttccacaataccggtagtatgctgacgcaaggagta 600

Qy     601 ggcgacggattcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgcc 660
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     601 ggcgacggattcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgcc 660

Qy     661 gccgaagccttcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaa 720
           |||||||| ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     661 gccgaagctttcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaa 720

Qy     721 attgtcggcgcaggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatg 780
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||| |||
Db     721 attgtcggcgcaggcgatgccgtgcagggtataagcgaaggctcaaacattgctgttatg 780

Qy     781 cacggcttgggtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagat 840
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     781 cacggcttgggtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagat 840

Qy     841 atggcgcaactcaaagactatgccgcagcagccatccgcgattgggcagtccaaaacccc 900
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     841 atggcgcaactcaaagactatgccgcagcagccatccgcgattgggcagtccaaaacccc 900

Qy     901 aatgccgcacaaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaa 960
           |||||||||||||||||||||||||||||||||||| ||||| ||||||| |||||
Db     901 aatgccgcacaaggcatagaagccgtcagcaatatctttacggcagtcatccccgtcaaa 960

Qy     961 gggattggagctgtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaag 1020
           |||||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Db     961 gggattggagctgttccggggaaaatacggcttgggcggcatcacggcacatcctgtcaag 1020

Qy    1021 cggtcgcagatgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaatttt 1080
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||||
Db    1021 cggtcgcagatgggcgagatcgcattgccgaaagggaaatccgccgtcagcgacaatttt 1080

Qy    1081 gccgatgcggcatacgccaaatacccgtccccttaccattcccgaaatatccgttcaaac 1140
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1081 gccgatgcggcatacgccaaatacccgtccccttaccattcccgaaatatccgttcaaac 1140

Qy    1141 ttggagcagcgttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggc 1200
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1141 ttggagcagcgttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacgga 1200

Qy    1201 aaaaatgtcaaactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaa 1260
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          || ||||| ||||||||| || ||||||||||||||||    || ||||||||||||||||
Db   1201 aagaatgtgaaactggcaaacaaacgccacccgaagaccaaagtgccgtttgacggtaaa 1260

Qy   1261 gggtttccgaattttgagaagcacgtgaaatatgatacgaagctcgata 1309
          ||||||||||||||||| ||  |||| ||||| |||||||   |  |||
Db   1261 gggtttccgaattttgaaaaagacgtaaaatacgatacgagaattaata 1309


RESULT   6
AAS43903
ID   AAS43903 standard; DNA; 2304 BP.
XX
AC   AAS43903;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Neisseria meningitidis fusion protein 961cL-ORF46.1 DNA.
XX
KW   Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KW   Neisserial protein.
XX
OS   Neisseria meningitidis.
OS   Synthetic.
XX
PN   WO200164922-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00452.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Guiliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-582163/65.
DR   P-PSDB; AAU27606.
XX
PT   Producing heterologous proteins from Neisseria meningitidis and N.
PT   gonorrhoeae -
XX
PS   Example 23; Page 73-74; 119pp; English.
XX
CC   The invention relates to methods for the heterologous expression of
CC   Neisserial proteins from Neisseria meningitidis and Neisseria
CC   gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC   leader peptide, and may be replaced by a domain from a different protein
CC   to make a fusion protein, in order to enhance heterologous expression of
CC   Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC   stretch, can be mutated to enhance expression. The proteins used in the
CC   processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC   AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins
CC   and peptide regions of proteins of the invention.
XX
SQ   Sequence 2304 BP; 710 A; 619 C; 555 G; 420 T; 0 other;


  Query Match             63.5%;  Score 1198.8;  DB 22;  Length 2304;
  Best Local Similarity   98.1%;  Pred. No. 0;
  Matches 1212;  Conservative    0;  Mismatches   23;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db    1069 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 1128

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           |||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db    1129 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 1188

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| |||||||||||||||||||||||||| ||
Db    1189 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 1248

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db    1249 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 1308

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Db    1309 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 1368

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1369 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 1428

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1429 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 1488

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1489 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 1548

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||   ||||||||||||||||||||||||||||||||
Db    1549 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 1608

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1609 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 1668

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    1669 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 1728

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Db    1729 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 1788

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1789 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 1848

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1849 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 1908

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1909 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 1968

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || |||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db    1969 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 2028

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2029 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 2088

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2089 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 2148

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2149 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 2208

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2209 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 2268

Qy    1273 tttgagaagcacgtgaaatatgatacgaagctcga 1307
           |||||||||||||||||||||||||||| | |||||
```

```
Db   2269 tttgagaagcacgtgaaatatgatacgtaactcga 2303


RESULT   7
AAD17056
ID   AAD17056 standard; DNA; 2304 BP.
XX
AC   AAD17056;
XX
DT   29-NOV-2001  (first entry)
XX
DE   N. meningitidis strain 2996 961cL-ORF46.1 fusion DNA.
XX
KW   Heterologous expression; Neisserial protein; open reading frame; ORF;
KW   961cL-ORF46.1 fusion protein; ds.
XX
OS   Neisseria meningitidis 2996.
XX
FH   Key             Location/Qualifiers
FT   CDS             1..2298
FT                   /*tag=  a
FT                   /product= "N. meningitidis strain 2996
FT                   961cL-ORF46.1 fusion protein"
XX
PN   WO200164920-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00420.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Giuliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-557776/62.
DR   P-PSDB; AAE10041.
XX
PT   Heterologous expression for the expression of two or more Neisserial
PT   proteins in fused state  -
XX
PS   Example 23; Page 32; 52pp; English.
XX
CC   The present invention relates to a method for simultaneous heterologous
CC   expression of two or more Neisserial proteins which are in a fused
CC   state. The method is useful for simultaneous heterologous expression of
CC   two or more Neisserial proteins. A protein that may be unstable or
CC   poorly expressed on its own is assisted by adding a suitable hybrid
CC   partner and commercial manufacture is simplified-only one expression and
CC   purification need to be employed in order to produce two separately-
CC   useful proteins. The present sequence is a DNA encoding
CC   Neisseria meningitidis (serogroup B, strain 2996) 961cL-ORF46.1
CC   (open reading frame) fusion protein.
XX
SQ   Sequence 2304 BP; 710 A; 619 C; 555 G; 420 T; 0 other;


  Query Match             63.5%;  Score 1198.8;  DB 22;  Length 2304;
  Best Local Similarity   98.1%;  Pred. No. 0;
  Matches 1212;  Conservative    0;  Mismatches   23;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db    1069 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 1128

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           |||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db    1129 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 1188

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||||| |||||||||||||||||||||||| ||
Db    1189 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 1248

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db    1249 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 1308

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||||| ||||||||||||||||||||||||||
Db    1309 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 1368

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1369 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 1428

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1429 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 1488

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1489 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 1548

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||   ||||||||||||||||||||||||||||||||
Db    1549 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 1608

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1609 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 1668

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    1669 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 1728

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Db    1729 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 1788

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1789 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 1848

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1849 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 1908

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1909 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 1968

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || |||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db    1969 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 2028

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2029 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 2088

Qy    1093 tacgccaaatacccgtcccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2089 tacgccaaatacccgtcccccttaccattcccgaaatatccgttcaaacttggagcagcgt 2148

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2149 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 2208

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2209 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 2268

Qy    1273 tttgagaagcacgtgaaatatgatacgaagctcga 1307
           |||||||||||||||||||||||||||| | |||||
```

```
Db   2269 tttgagaagcacgtgaaatatgatacgtaactcga 2303


RESULT   8
AAS43881
ID   AAS43881 standard; DNA; 2028 BP.
XX
AC   AAS43881;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Neisseria meningitidis fusion protein delta-G741-ORF46.1 DNA.
XX
KW   Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KW   Neisserial protein.
XX
OS   Neisseria meningitidis.
OS   Synthetic.
XX
PN   WO200164922-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00452.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Guiliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-582163/65.
DR   P-PSDB; AAU27582.
XX
PT   Producing heterologous proteins from Neisseria meningitidis and N.
PT   gonorrhoeae -
XX
PS   Example 15; Page 53; 119pp; English.
XX
CC   The invention relates to methods for the heterologous expression of
CC   Neisserial proteins from Neisseria meningitidis and Neisseria
CC   gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC   leader peptide, and may be replaced by a domain from a different protein
CC   to make a fusion protein, in order to enhance heterologous expression of
CC   Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC   stretch, can be mutated to enhance expression. The proteins used in the
CC   processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC   AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins
CC   and peptide regions of proteins of the invention.
XX
SQ   Sequence 2028 BP; 557 A; 577 C; 531 G; 363 T; 0 other;


  Query Match             63.4%;  Score 1196;  DB 22;  Length 2028;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1208;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      71 cctcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaac 130
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db     773 cctcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaac 832

Qy     131 ccgacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccata 190
           ||||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||
Db     833 ccgacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccata 892

Qy     191 tcggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccg 250
           |||||||||||||| |||||||||||||||||||| ||||||||||||||||||||||||
Db     893 tcggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggcca 952

Qy     251 ttgaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgc 310
           || |||||||||||||||||||||||||||||||||||||||||||||| || ||||||| |
Db     953 ttaaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccc 1012

Qy     311 ccttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggat 370
           |||||||||||||||||||||||||||||||||||| |||||||||||||||||||||||
Db    1013 ccttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggat 1072

Qy     371 tcagcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacg 430
           | ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1073 ttagcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacg 1132

Qy     431 ggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgaca 490
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1133 ggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgaca 1192

Qy     491 taaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaac 550
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1193 taaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaac 1252

Qy     551 ggcttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggat 610
           |||||||||||||||||||||||||||||    ||||||||||||||||||||||||||
Db    1253 ggcttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggat 1312

Qy     611 tcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagcct 670
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1313 tcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagcct 1372

Qy     671 tcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcg 730
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    1373 tcaacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcg 1432

Qy     731 caggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgg 790
           |||||||||||||||||| ||||||||||||||||||||||||||||||||||||||||
Db    1433 caggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgg 1492

Qy     791 gtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaac 850
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1493 gtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaac 1552

Qy     851 tcaaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcac 910
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1553 tcaaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcac 1612

Qy     911 aaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggag 970
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1613 aaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggag 1672

Qy     971 ctgtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcaga 1030
           |||| |||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db    1673 ctgttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcaga 1732

Qy    1031 tgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcgg 1090
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1733 tgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcgg 1792

Qy    1091 catacgccaaatacccgtcccctaccattcccgaaatatccgttcaaacttggagcagc 1150
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1793 catacgccaaatacccgtcccctaccattcccgaaatatccgttcaaacttggagcagc 1852

Qy    1151 gttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtca 1210
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1853 gttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtca 1912

Qy    1211 aactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccga 1270
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1913 aactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccga 1972

Qy    1271 attttgagaagcacgtgaaatatgatacg 1299
           |||||||||||||||||||||||||||||
Db    1973 attttgagaagcacgtgaaatatgatacg 2001


RESULT   9
AAD17046
```

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ID   AAD17046 standard; DNA; 2028 BP.
XX
AC   AAD17046;
XX
DT   29-NOV-2001  (first entry)
XX
DE   N. meningitidis strain 2996 delta G741-ORF46.1 fusion DNA.
XX
KW   Heterologous expression; Neisserial protein; open reading frame; ORF;
KW   delta G741-ORF46.1 fusion protein; ds.
XX
OS   Neisseria meningitidis 2996.
XX
FH   Key             Location/Qualifiers
FT   CDS             1..2028
FT                   /*tag=  a
FT                   /product= "N. meningitidis strain 2996 delta
FT                   G741-ORF46.1 fusion protein"
XX
PN   WO200164920-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00420.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Giuliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-557776/62.
DR   P-PSDB; AAE10031.
XX
PT   Heterologous expression for the expression of two or more Neisserial
PT   proteins in fused state  -
XX
PS   Example 4; Page 21-22; 52pp; English.
XX
CC   The present invention relates to a method for simultaneous heterologous
CC   expression of two or more Neisserial proteins which are in a fused
CC   state. The method is useful for simultaneous heterologous expression of
CC   two or more Neisserial proteins. A protein that may be unstable or
CC   poorly expressed on its own is assisted by adding a suitable hybrid
CC   partner and commercial manufacture is simplified-only one expression and
CC   purification need to be employed in order to produce two separately-
CC   useful proteins. The present sequence is a DNA encoding
CC   Neisseria meningitidis (serogroup B, strain 2996) delta G741-ORF46.1
CC   (open reading frame) fusion protein.
XX
SQ   Sequence 2028 BP; 557 A; 577 C; 531 G; 363 T; 0 other;
```

```
  Query Match           63.4%;  Score 1196;  DB 22;  Length 2028;
  Best Local Similarity  98.3%;  Pred. No. 0;
  Matches 1208;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      71 cctcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaac 130
           |||||||||||||||||||| | ||||||||||||||||||||||||||||||||||||
Db     773 cctcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaac 832

Qy     131 ccgacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccata 190
           |||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||
Db     833 ccgacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccata 892

Qy     191 tcggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccg 250
           |||||||||||| |||||||||||||||||||| |||||||||||||||||||||||||
Db     893 tcggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggcca 952

Qy     251 ttgaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgc 310
           || |||||||||||||||||||||||||||||||||||||||||||||| || ||||||| |
Db     953 ttaaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccc 1012

Qy     311 ccttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggat 370
           |||||||||||||||||||||||||||||||||||| |||||||||||||||||||||||
Db    1013 ccttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggat 1072

Qy     371 tcagcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacg 430
           | ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1073 ttagcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacg 1132

Qy     431 ggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgaca 490
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1133 ggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgaca 1192

Qy     491 taaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaac 550
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1193 taaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaac 1252

Qy     551 ggcttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggat 610
           |||||||||||||||||||||||||||||   ||||||||||||||||||||||||||||
Db    1253 ggcttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggat 1312

Qy     611 tcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagcct 670
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1313 tcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagcct 1372

Qy     671 tcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcg 730
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    1373 tcaacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcg 1432

Qy     731 caggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgg 790
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    1433 caggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgg 1492

Qy     791 gtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaac 850
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1493 gtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaac 1552

Qy     851 tcaaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcac 910
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1553 tcaaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcac 1612

Qy     911 aaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggag 970
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1613 aaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggag 1672

Qy     971 ctgtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcaga 1030
           |||| ||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db    1673 ctgttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcaga 1732

Qy    1031 tgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcgg 1090
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1733 tgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcgg 1792

Qy    1091 catacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagc 1150
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1793 catacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagc 1852

Qy    1151 gttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtca 1210
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1853 gttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtca 1912

Qy    1211 aactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccga 1270
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1913 aactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccga 1972

Qy    1271 attttgagaagcacgtgaaatatgatacg 1299
           |||||||||||||||||||||||||||||
Db    1973 attttgagaagcacgtgaaatatgatacg 2001
```

RESULT 10
AAS43874

```
ID   AAS43874 standard; DNA; 4425 BP.
XX
AC   AAS43874;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Neisseria meningitidis fusion protein delta-G983-ORF46.1 DNA.
XX
KW   Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KW   Neisserial protein.
XX
OS   Neisseria meningitidis.
OS   Synthetic.
XX
PN   WO200164922-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00452.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Guiliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-582163/65.
DR   P-PSDB; AAU27575.
XX
PT   Producing heterologous proteins from Neisseria meningitidis and N.
PT   gonorrhoeae -
XX
PS   Example 15; Page 42-43; 119pp; English.
XX
CC   The invention relates to methods for the heterologous expression of
CC   Neisserial proteins from Neisseria meningitidis and Neisseria
CC   gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC   leader peptide, and may be replaced by a domain from a different protein
CC   to make a fusion protein, in order to enhance heterologous expression of
CC   Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC   stretch, can be mutated to enhance expression. The proteins used in the
CC   processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC   AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins
CC   and peptide regions of proteins of the invention.
XX
SQ   Sequence 4425 BP; 1165 A; 1259 C; 1219 G; 782 T; 0 other;

  Query Match             63.4%;  Score 1196;  DB 22;  Length 4425;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1208;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      71 cctcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaac 130
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db    3170 cctcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaac 3229

Qy     131 ccgacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccata 190
           |||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||
Db    3230 ccgacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccata 3289

Qy     191 tcggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccg 250
           |||||||||||||| ||||||||||||||||||||| ||||||||||||||||||||||
Db    3290 tcggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggcca 3349

Qy     251 ttgaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgc 310
           || |||||||||||||||||||||||||||||||||||||||||||| || ||||||| |
Db    3350 ttaaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccc 3409

Qy     311 ccttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggat 370
           |||||||||||||||||||||||||||||||||| ||||||||||||||||||||||||
Db    3410 ccttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggat 3469

Qy     371 tcagcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacg 430
           | ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3470 ttagcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacg 3529

Qy     431 ggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgaca 490
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3530 ggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgaca 3589

Qy     491 taaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaac 550
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3590 taaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaac 3649

Qy     551 ggcttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggat 610
           |||||||||||||||||||||||||||||    ||||||||||||||||||||||||||||
Db    3650 ggcttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggat 3709

Qy     611 tcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagcct 670
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3710 tcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagcct 3769

Qy     671 tcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcg 730
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    3770 tcaacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcg 3829

Qy     731 caggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgg 790
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    3830 caggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgg 3889

Qy     791 gtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaac 850
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3890 gtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaac 3949

Qy     851 tcaaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcac 910
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3950 tcaaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcac 4009

Qy     911 aaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggag 970
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4010 aaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggag 4069

Qy     971 ctgtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcaga 1030
           |||| |||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db    4070 ctgttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcaga 4129

Qy    1031 tgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcgg 1090
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4130 tgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcgg 4189

Qy    1091 catacgccaaatacccgtcccctaccattcccgaaatatccgttcaaacttggagcagc 1150
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4190 catacgccaaatacccgtcccctaccattcccgaaatatccgttcaaacttggagcagc 4249

Qy    1151 gttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtca 1210
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4250 gttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtca 4309

Qy    1211 aactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccga 1270
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4310 aactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccga 4369

Qy    1271 attttgagaagcacgtgaaatatgatacg 1299
           |||||||||||||||||||||||||||||
Db    4370 attttgagaagcacgtgaaatatgatacg 4398


RESULT  11
AAD17039
ID   AAD17039 standard; DNA; 4425 BP.
XX
AC   AAD17039;
XX
DT   29-NOV-2001  (first entry)
```

```
XX
DE   N. meningitidis strain 2996 delta G983-ORF46.1 fusion DNA.
XX
KW   Heterologous expression; Neisserial protein; open reading frame; ORF;
KW   delta G983-ORF46.1 fusion protein; ds.
XX
OS   Neisseria meningitidis 2996.
XX
FH   Key             Location/Qualifiers
FT   CDS             1..4425
FT                   /*tag= a
FT                   /product= "N. meningitidis strain 2996 delta
FT                   G983-ORF46.1 fusion protein"
XX
PN   WO200164920-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00420.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Giuliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-557776/62.
DR   P-PSDB; AAE10022.
XX
PT   Heterologous expression for the expression of two or more Neisserial
PT   proteins in fused state  -
XX
PS   Example 3; Page 13-14; 52pp; English.
XX
CC   The present invention relates to a method for simultaneous heterologous
CC   expression of two or more Neisserial proteins which are in a fused
CC   state. The method is useful for simultaneous heterologous expression of
CC   two or more Neisserial proteins. A protein that may be unstable or
CC   poorly expressed on its own is assisted by adding a suitable hybrid
CC   partner and commercial manufacture is simplified-only one expression and
CC   purification need to be employed in order to produce two separately-
CC   useful proteins. The present sequence is a DNA encoding
CC   Neisseria meningitidis (serogroup B, strain 2996) delta G983-ORF46.1
CC   (open reading frame) fusion protein.
XX
SQ   Sequence 4425 BP; 1165 A; 1259 C; 1219 G; 782 T; 0 other;

  Query Match             63.4%;  Score 1196;  DB 22;  Length 4425;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1208;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      71 cctcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaac 130
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db    3170 cctcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaac 3229

Qy     131 ccgacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccata 190
           |||||||||||||||||||||||||||||||||||| |||||| |||||| |||||||
Db    3230 ccgacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccata 3289

Qy     191 tcggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccg 250
           |||||||||||| |||||||||||||||||||| ||||||||||||||||||||||||
Db    3290 tcggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggcca 3349

Qy     251 ttgaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgc 310
           || |||||||||||||||||||||||||||||||||||||||||| || ||||||| |
Db    3350 ttaaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccc 3409

Qy     311 ccttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggat 370
           |||||||||||||||||||||||||||||||||| ||||||||||||||||||||||||
Db    3410 ccttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggat 3469

Qy     371 tcagcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacg 430
           | ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3470 ttagcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacg 3529

Qy     431 ggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgaca 490
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3530 ggccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgaca 3589

Qy     491 taaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaac 550
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3590 taaaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaac 3649

Qy     551 ggcttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggat 610
           |||||||||||||||||||||||||||||    ||||||||||||||||||||||||||||
Db    3650 ggcttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggat 3709

Qy     611 tcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagcct 670
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3710 tcaaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagcct 3769

Qy     671 tcaacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcg 730
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    3770 tcaacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcg 3829

Qy     731 caggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgg 790
           |||||||||||||||||| ||||||||||||||||||||||||||||||||||||||||
Db    3830 caggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgg 3889

Qy     791 gtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaac 850
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3890 gtctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaac 3949

Qy     851 tcaaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcac 910
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    3950 tcaaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcac 4009

Qy     911 aaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggag 970
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4010 aaggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggag 4069

Qy     971 ctgtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcaga 1030
           |||| |||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db    4070 ctgttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcaga 4129

Qy    1031 tgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcgg 1090
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4130 tgggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcgg 4189

Qy    1091 catacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagc 1150
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4190 catacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagc 4249

Qy    1151 gttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtca 1210
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4250 gttacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtca 4309

Qy    1211 aactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccga 1270
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    4310 aactggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccga 4369

Qy    1271 attttgagaagcacgtgaaaatatgatacg 1299
           |||||||||||||||||||||||||||||
Db    4370 attttgagaagcacgtgaaaatatgatacg 4398


RESULT  12
AAS43894
ID   AAS43894 standard; DNA; 2019 BP.
XX
AC   AAS43894;
XX
DT   18-DEC-2001  (first entry)
```

```
XX
DE   Neisseria meningitidis fusion protein ORF46.1-741 DNA.
XX
KW   Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KW   Neisserial protein.
XX
OS   Neisseria meningitidis.
OS   Synthetic.
XX
PN   WO200164922-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00452.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Guiliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-582163/65.
DR   P-PSDB; AAU27597.
XX
PT   Producing heterologous proteins from Neisseria meningitidis and N.
PT   gonorrhoeae -
XX
PS   Example 23; Page 63-64; 119pp; English.
XX
CC   The invention relates to methods for the heterologous expression of
CC   Neisserial proteins from Neisseria meningitidis and Neisseria
CC   gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC   leader peptide, and may be replaced by a domain from a different protein
CC   to make a fusion protein, in order to enhance heterologous expression of
CC   Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC   stretch, can be mutated to enhance expression. The proteins used in the
CC   processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC   AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins
CC   and peptide regions of proteins of the invention.
XX
SQ   Sequence 2019 BP; 555 A; 571 C; 531 G; 362 T; 0 other;


  Query Match             63.3%;  Score 1194;  DB 22;  Length 2019;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db       4 tcagatttggcaaacgattctttatccggcaggttctcgaccgtcagcatttcgaaccc 63

Qy     133 gacgggaaataccacctattcggcagcaggggggagcttgccnagcgcaacggccatatc 192
           |||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db      64 gacgggaaataccacctattcggcagcaggggggaacttgccgagcgcagcggccatatc 123

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||||| |||||||||||||||||||| |||||||||||||||||||||||| ||
Db     124 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 183

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db     184 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 243

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||||| |||||||||||||||||||||||||
Db     244 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 303

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     304 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 363

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     364 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 423

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     424 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 483

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||    ||||||||||||||||||||||||||||||
Db     484 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 543

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     544 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 603

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db     604 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 663

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Db     664 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 723

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     724 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 783

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     784 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 843

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     844 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 903

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || ||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db     904 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 963

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     964 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1023

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1024 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1083

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1084 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1143

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1144 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1203

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
           ||||||||||||||||||||||||||
Db    1204 tttgagaagcacgtgaaatatgatacg 1230


RESULT  13
AAD17047
ID   AAD17047 standard; DNA; 2019 BP.
XX
AC   AAD17047;
XX
DT   29-NOV-2001  (first entry)
XX
DE   N. meningitidis strain 2996 ORF46.1-741 fusion DNA.
XX
KW   Heterologous expression; Neisserial protein; open reading frame; ORF;
KW   ORF46.1-741 fusion protein; ds.
```

```
XX
OS   Neisseria meningitidis 2996.
XX
FH   Key             Location/Qualifiers
FT   CDS             1..2019
FT                   /*tag= a
FT                   /product= "N. meningitidis strain 2996 ORF46.1-741
FT                   fusion protein"
XX
PN   WO200164920-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00420.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-557776/62.
DR   P-PSDB; AAE10032.
XX
PT   Heterologous expression for the expression of two or more Neisserial
PT   proteins in fused state -
XX
PS   Example 4; Page 24-25; 52pp; English.
XX
CC   The present invention relates to a method for simultaneous heterologous
CC   expression of two or more Neisserial proteins which are in a fused
CC   state. The method is useful for simultaneous heterologous expression of
CC   two or more Neisserial proteins. A protein that may be unstable or
CC   poorly expressed on its own is assisted by adding a suitable hybrid
CC   partner and commercial manufacture is simplified-only one expression and
CC   purification need to be employed in order to produce two separately-
CC   useful proteins. The present sequence is a DNA encoding
CC   Neisseria meningitidis (serogroup B, strain 2996) ORF46.1 (open
CC   reading frame)-741 fusion protein.
XX
SQ   Sequence 2019 BP; 555 A; 571 C; 531 G; 362 T; 0 other;

  Query Match             63.3%;  Score 1194;  DB 22;  Length 2019;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db       4 tcagatttggcaaacgattctttatccggcaggttctcgaccgtcagcatttcgaaccc 63

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           |||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db      64 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 123

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| |||||||||||||||||||||||||| ||
Db     124 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 183

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db     184 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 243

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||||| |||||||||||||||||||||||||
Db     244 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 303

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     304 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 363

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     364 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 423

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     424 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 483

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||    ||||||||||||||||||||||||||||||
Db     484 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 543

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     544 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 603

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db     604 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 663

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||||| ||||||||||||||||||||||||||||||||||||||||
Db     664 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 723

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     724 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 783

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     784 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 843

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     844 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 903

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || |||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db     904 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 963

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     964 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1023

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1024 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1083

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1084 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1143

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1144 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1203

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
           |||||||||||||||||||||||||||
Db    1204 tttgagaagcacgtgaaatatgatacg 1230


RESULT 14
AAS43896
ID   AAS43896 standard; DNA; 2256 BP.
XX
AC   AAS43896;
XX
DT   18-DEC-2001 (first entry)
XX
DE   Neisseria meningitidis fusion protein ORF46.1-961c DNA.
XX
KW   Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KW   Neisserial protein.
```

```
XX
OS   Neisseria meningitidis.
OS   Synthetic.
XX
PN   WO200164922-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00452.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Guiliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-582163/65.
DR   P-PSDB; AAU27599.
XX
PT   Producing heterologous proteins from Neisseria meningitidis and N.
PT   gonorrhoeae -
XX
PS   Example 23; Page 65-66; 119pp; English.
XX
CC   The invention relates to methods for the heterologous expression of
CC   Neisserial proteins from Neisseria meningitidis and Neisseria
CC   gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC   leader peptide, and may be replaced by a domain from a different protein
CC   to make a fusion protein, in order to enhance heterologous expression of
CC   Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC   stretch, can be mutated to enhance expression. The proteins used in the
CC   processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC   AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins
CC   and peptide regions of proteins of the invention.
XX
SQ   Sequence 2256 BP; 698 A; 608 C; 545 G; 405 T; 0 other;


  Query Match             63.3%;  Score 1194;  DB 22;  Length 2256;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db       4 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 63

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           ||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db      64 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 123

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| |||||||||||||||||||||||||| ||
Db     124 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 183

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
            |||||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db     184 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 243

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||||||||| ||||||||||||||||||||||
Db     244 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 303

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     304 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 363

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     364 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 423

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     424 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 483

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||    ||||||||||||||||||||||||||||||
Db     484 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 543

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     544 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 603

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||| ||||||||||||||||||||||||||||||||||||||||
Db     604 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 663

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Db     664 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 723

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     724 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 783

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     784 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 843

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     844 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 903

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || ||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db     904 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 963

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     964 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1023

Qy    1093 tacgccaaatacccgtcccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1024 tacgccaaatacccgtcccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1083

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1084 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1143

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1144 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1203

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
           ||||||||||||||||||||||||||
Db    1204 tttgagaagcacgtgaaatatgatacg 1230


RESULT  15
AAS43900
ID   AAS43900 standard; DNA; 2256 BP.
XX
AC   AAS43900;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Neisseria meningitidis fusion protein 961c-ORF46.1 DNA.
XX
KW   Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KW   Neisserial protein.
XX
OS   Neisseria meningitidis.
OS   Synthetic.
XX
PN   WO200164922-A2.
```

```
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00452.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Guiliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-582163/65.
DR   P-PSDB; AAU27603.
XX
PT   Producing heterologous proteins from Neisseria meningitidis and N.
PT   gonorrhoeae -
XX
PS   Example 23; Page 70; 119pp; English.
XX
CC   The invention relates to methods for the heterologous expression of
CC   Neisserial proteins from Neisseria meningitidis and Neisseria
CC   gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC   leader peptide, and may be replaced by a domain from a different protein
CC   to make a fusion protein, in order to enhance heterologous expression of
CC   Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC   stretch, can be mutated to enhance expression. The proteins used in the
CC   processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC   AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins
CC   and peptide regions of proteins of the invention.
XX
SQ   Sequence 2256 BP; 698 A; 608 C; 545 G; 405 T; 0 other;


  Query Match             63.3%;  Score 1194;  DB 22;  Length 2256;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db    1003 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 1062

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           |||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db    1063 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 1122

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| |||||||||||||||||||||||||| ||
Db    1123 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 1182

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db    1183 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 1242

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||||| ||||||||||||||||||||||||||
Db    1243 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 1302

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1303 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 1362

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1363 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 1422

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1423 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 1482

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||||   ||||||||||||||||||||||||||||||
Db    1483 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 1542

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1543 aaacgcgcccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 1602

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    1603 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 1662

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Db    1663 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 1722

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1723 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 1782

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1783 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 1842

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1843 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 1902

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || |||||||||||||||||||||||||||||||||| ||||||||||||||||||||
Db    1903 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 1962

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1963 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 2022

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2023 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 2082

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2083 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 2142

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2143 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 2202

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
           |||||||||||||||||||||||||||
Db    2203 tttgagaagcacgtgaaatatgatacg 2229


RESULT  16
AAD17049
ID   AAD17049 standard; DNA; 2256 BP.
XX
AC   AAD17049;
XX
DT   29-NOV-2001  (first entry)
XX
DE   N. meningitidis strain 2996 ORF46.1-961c fusion DNA.
XX
KW   Heterologous expression; Neisserial protein; open reading frame; ORF;
KW   ORF46.1-961c fusion protein; ds.
XX
OS   Neisseria meningitidis 2996.
XX
FH   Key             Location/Qualifiers
FT   CDS             1..2256
FT                   /*tag=  a
FT                   /product= "N. meningitidis strain 2996 ORF46.1-961c
FT                   fusion protein"
XX
PN   WO200164920-A2.
```

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XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00420.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Giuliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-557776/62.
DR   P-PSDB; AAE10034.
XX
PT   Heterologous expression for the expression of two or more Neisserial
PT   proteins in fused state -
XX
PS   Example 23; Page 26; 52pp; English.
XX
CC   The present invention relates to a method for simultaneous heterologous
CC   expression of two or more Neisserial proteins which are in a fused
CC   state. The method is useful for simultaneous heterologous expression of
CC   two or more Neisserial proteins. A protein that may be unstable or
CC   poorly expressed on its own is assisted by adding a suitable hybrid
CC   partner and commercial manufacture is simplified-only one expression and
CC   purification need to be employed in order to produce two separately-
CC   useful proteins. The present sequence is a DNA encoding
CC   Neisseria meningitidis (serogroup B, strain 2996) ORF46.1 (open
CC   reading frame)-961c fusion protein.
XX
SQ   Sequence 2256 BP; 698 A; 608 C; 545 G; 405 T; 0 other;


  Query Match             63.3%;  Score 1194;  DB 22;  Length 2256;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db       4 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 63

Qy     133 gacgggaaataccacctattcggcagcaggggggagcttgccnagcgcaacggccatatc 192
           |||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db      64 gacgggaaataccacctattcggcagcaggggggaacttgccgagcgcagcggccatatc 123

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| ||||||||||||||||||||||||| ||
Db     124 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 183

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
            |||||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db     184 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 243

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||
Db     244 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 303

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     304 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 363

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     364 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 423

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     424 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 483

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||   ||||||||||||||||||||||||||||||||

Db     484 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 543

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     544 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 603

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db     604 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 663

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Db     664 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 723

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     724 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 783

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     784 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 843

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     844 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 903

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || |||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db     904 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 963

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     964 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1023

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1024 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1083

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1084 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1143

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1144 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1203

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
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Db    1204 tttgagaagcacgtgaaatatgatacg 1230


RESULT  17
AAD17053
ID   AAD17053 standard; DNA; 2256 BP.
XX
AC   AAD17053;
XX
DT   29-NOV-2001  (first entry)
XX
DE   N. meningitidis strain 2996 961c-ORF46.1 fusion DNA.
XX
KW   Heterologous expression; Neisserial protein; open reading frame; ORF;
KW   961c-ORF46.1 fusion protein; ds.
XX
OS   Neisseria meningitidis 2996.
XX
FH   Key             Location/Qualifiers
FT   CDS             1..2256
FT                   /*tag= a
FT                   /product= "N. meningitidis strain 2996 961c-ORF46.1
FT                   fusion protein"
XX
PN   WO200164920-A2.
```

```
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00420.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Giuliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-557776/62.
DR   P-PSDB; AAE10038.
XX
PT   Heterologous expression for the expression of two or more Neisserial
PT   proteins in fused state  -
XX
PS   Example 23; Page 29-30; 52pp; English.
XX
CC   The present invention relates to a method for simultaneous heterologous
CC   expression of two or more Neisserial proteins which are in a fused
CC   state. The method is useful for simultaneous heterologous expression of
CC   two or more Neisserial proteins. A protein that may be unstable or
CC   poorly expressed on its own is assisted by adding a suitable hybrid
CC   partner and commercial manufacture is simplified-only one expression and
CC   purification need to be employed in order to produce two separately-
CC   useful proteins. The present sequence is a DNA encoding
CC   Neisseria meningitidis (serogroup B, strain 2996) 961c-ORF46.1
CC   (open reading frame) fusion protein.
XX
SQ   Sequence 2256 BP; 698 A; 608 C; 545 G; 405 T; 0 other;


  Query Match             63.3%;  Score 1194;  DB 22;  Length 2256;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db    1003 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 1062

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           |||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db    1063 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 1122

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| |||||||||||||||||||||||||| ||
Db    1123 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 1182

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db    1183 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 1242

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||
Db    1243 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 1302

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1303 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 1362

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1363 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 1422

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1423 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 1482

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||||   ||||||||||||||||||||||||||||||
Db    1483 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 1542

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1543 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 1602

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    1603 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 1662

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Db    1663 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 1722

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1723 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 1782

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1783 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 1842

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1843 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 1902

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || |||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db    1903 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 1962

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1963 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 2022

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2023 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 2082

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2083 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 2142

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2143 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 2202

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
           |||||||||||||||||||||||||||
Db    2203 tttgagaagcacgtgaaatatgatacg 2229


RESULT  18
AAS43895
ID   AAS43895 standard; DNA; 2421 BP.
XX
AC   AAS43895;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Neisseria meningitidis fusion protein ORF46.1-961 DNA.
XX
KW   Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KW   Neisserial protein.
XX
OS   Neisseria meningitidis.
OS   Synthetic.
XX
PN   WO200164922-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00452.
XX
```

```
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Guiliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-582163/65.
DR   P-PSDB; AAU27598.
XX
PT   Producing heterologous proteins from Neisseria meningitidis and N.
PT   gonorrhoeae -
XX
PS   Example 23; Page 64-65; 119pp; English.
XX
CC   The invention relates to methods for the heterologous expression of
CC   Neisserial proteins from Neisseria meningitidis and Neisseria
CC   gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC   leader peptide, and may be replaced by a domain from a different protein
CC   to make a fusion protein, in order to enhance heterologous expression of
CC   Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC   stretch, can be mutated to enhance expression. The proteins used in the
CC   processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC   AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins
CC   and peptide regions of proteins of the invention.
XX
SQ   Sequence 2421 BP; 730 A; 659 C; 591 G; 441 T; 0 other;


  Query Match             63.3%;  Score 1194;  DB 22;  Length 2421;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db       4 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 63

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           ||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db      64 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 123

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| |||||||||||||||||||||||||| ||
Db     124 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 183

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db     184 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 243

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||||| |||||||||||||||||||||||||||
Db     244 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 303

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     304 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 363

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     364 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 423

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     424 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 483

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||   ||||||||||||||||||||||||||||||||||
Db     484 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 543

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     544 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 603

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db     604 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 663

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||||| ||||||||||||||||||||||||||||||||||||||||
Db     664 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 723

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     724 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 783

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     784 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 843

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     844 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 903

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || ||||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db     904 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 963

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     964 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1023

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1024 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1083

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1084 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1143

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1144 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1203

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
           |||||||||||||||||||||||||||
Db    1204 tttgagaagcacgtgaaatatgatacg 1230


RESULT  19
AAS43897
ID   AAS43897 standard; DNA; 2421 BP.
XX
AC   AAS43897;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Neisseria meningitidis fusion protein 961-ORF46.1 DNA.
XX
KW   Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1; ds;
KW   Neisserial protein.
XX
OS   Neisseria meningitidis.
OS   Synthetic.
XX
PN   WO200164922-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00452.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
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PI   Arico MB, Comanducci M, Galeotti C, Masignani V, Guiliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-582163/65.
DR   P-PSDB; AAU27600.
XX
PT   Producing heterologous proteins from Neisseria meningitidis and N.
PT   gonorrhoeae -
XX
PS   Example 23; Page 66-67; 119pp; English.
XX
CC   The invention relates to methods for the heterologous expression of
CC   Neisserial proteins from Neisseria meningitidis and Neisseria
CC   gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC   leader peptide, and may be replaced by a domain from a different protein
CC   to make a fusion protein, in order to enhance heterologous expression of
CC   Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC   stretch, can be mutated to enhance expression. The proteins used in the
CC   processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC   AAS43868-AAS43905 represent DNA molecules encoding Neisserial proteins
CC   and peptide regions of proteins of the invention.
XX
SQ   Sequence 2421 BP; 730 A; 659 C; 591 G; 441 T; 0 other;


  Query Match             63.3%;  Score 1194;  DB 22;  Length 2421;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db    1168 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 1227

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           ||||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db    1228 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 1287

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| |||||||||||||||||||||||||| ||
Db    1288 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 1347

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db    1348 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 1407

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||||| ||||||||||||||||||||||||||
Db    1408 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 1467

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1468 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 1527

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1528 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 1587

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1588 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 1647

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||   ||||||||||||||||||||||||||||||
Db    1648 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 1707

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1708 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 1767

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||| ||||||||||||||||||||||||||||||||||||||||
Db    1768 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 1827

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Db    1828 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 1887

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1888 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 1947

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1948 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 2007

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2008 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 2067

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || ||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db    2068 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 2127

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2128 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 2187

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2188 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 2247

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2248 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 2307

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2308 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 2367

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
           ||||||||||||||||||||||||||
Db    2368 tttgagaagcacgtgaaatatgatacg 2394


RESULT  20
AAD17048
ID   AAD17048 standard; DNA; 2421 BP.
XX
AC   AAD17048;
XX
DT   29-NOV-2001  (first entry)
XX
DE   N. meningitidis strain 2996 ORF46.1-961 fusion DNA.
XX
KW   Heterologous expression; Neisserial protein; open reading frame; ORF;
KW   ORF46.1-961 fusion protein; ds.
XX
OS   Neisseria meningitidis 2996.
XX
FH   Key             Location/Qualifiers
FT   CDS             1..2421
FT                   /*tag= a
FT                   /product= "N. meningitidis strain 2996 ORF46.1-961
FT                   fusion protein"
XX
PN   WO200164920-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00420.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
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PI   Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-557776/62.
DR   P-PSDB; AAE10033.
XX
PT   Heterologous expression for the expression of two or more Neisserial
PT   proteins in fused state -
XX
PS   Example 23; Page 25; 52pp; English.
XX
CC   The present invention relates to a method for simultaneous heterologous
CC   expression of two or more Neisserial proteins which are in a fused
CC   state. The method is useful for simultaneous heterologous expression of
CC   two or more Neisserial proteins. A protein that may be unstable or
CC   poorly expressed on its own is assisted by adding a suitable hybrid
CC   partner and commercial manufacture is simplified-only one expression and
CC   purification need to be employed in order to produce two separately-
CC   useful proteins. The present sequence is a DNA encoding
CC   Neisseria meningitidis (serogroup B, strain 2996) ORF46.1 (open
CC   reading frame)-961 fusion protein.
XX
SQ   Sequence 2421 BP; 730 A; 659 C; 591 G; 441 T; 0 other;


  Query Match             63.3%;  Score 1194;  DB 22;  Length 2421;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           |||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||
Db       4 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 63

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           |||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db      64 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 123

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| |||||||||||||||||||||||||| ||
Db     124 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 183

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db     184 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 243

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||||||||| ||||||||||||||||||||||
Db     244 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 303

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     304 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 363

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     364 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 423

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     424 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 483

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||   ||||||||||||||||||||||||||||||||
Db     484 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 543

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     544 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 603

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||| ||||||||||||||||||||||||||||||||||||||||
Db     604 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 663

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||
Db     664 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 723

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     724 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 783

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     784 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 843

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     844 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 903

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || |||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db     904 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 963

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     964 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1023

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1024 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1083

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1084 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1143

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1144 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1203

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
           ||||||||||||||||||||||||||||
Db    1204 tttgagaagcacgtgaaatatgatacg 1230


RESULT  21
AAD17050
ID   AAD17050 standard; DNA; 2421 BP.
XX
AC   AAD17050;
XX
DT   29-NOV-2001  (first entry)
XX
DE   N. meningitidis strain 2996 961-ORF46.1 fusion DNA.
XX
KW   Heterologous expression; Neisserial protein; open reading frame; ORF;
KW   961-ORF46.1 fusion protein; ds.
XX
OS   Neisseria meningitidis 2996.
XX
FH   Key             Location/Qualifiers
FT   CDS             1..2421
FT                   /*tag= a
FT                   /product= "N. meningitidis strain 2996 961-ORF46.1
FT                   fusion protein"
XX
PN   WO200164920-A2.
XX
PD   07-SEP-2001.
XX
PF   28-FEB-2001; 2001WO-IB00420.
XX
PR   28-FEB-2000; 2000GB-0004695.
PR   13-NOV-2000; 2000GB-0027675.
XX
PA   (CHIR-) CHIRON SPA.
XX
```

```
PI   Arico MB,  Comanducci M,  Galeotti C,  Masignani V,  Giuliani MM;
PI   Pizza M;
XX
DR   WPI; 2001-557776/62.
DR   P-PSDB; AAE10035.
XX
PT   Heterologous expression for the expression of two or more Neisserial
PT   proteins in fused state  -
XX
PS   Example 23; Page 27; 52pp; English.
XX
CC   The present invention relates to a method for simultaneous heterologous
CC   expression of two or more Neisserial proteins which are in a fused
CC   state. The method is useful for simultaneous heterologous expression of
CC   two or more Neisserial proteins. A protein that may be unstable or
CC   poorly expressed on its own is assisted by adding a suitable hybrid
CC   partner and commercial manufacture is simplified-only one expression and
CC   purification need to be employed in order to produce two separately-
CC   useful proteins. The present sequence is a DNA encoding
CC   Neisseria meningitidis (serogroup B, strain 2996) 961-ORF46.1
CC   (open reading frame) fusion protein.
XX
SQ   Sequence 2421 BP; 730 A; 659 C; 591 G; 441 T; 0 other;

  Query Match             63.3%;  Score 1194;  DB 22;  Length 2421;
  Best Local Similarity   98.3%;  Pred. No. 0;
  Matches 1206;  Conservative    0;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      73 tcagatttggcaaacgatccctttatccggcaggttctcgaccgtcagcatttcgaaccc 132
           ||||||||||||||||| | ||||||||||||||||||||||||||||||||||||||||
Db    1168 tcagatttggcaaacgattcttttatccggcaggttctcgaccgtcagcatttcgaaccc 1227

Qy     133 gacgggaaataccacctattcggcagcagggggagcttgccnagcgcaacggccatatc 192
           ||||||||||||||||||||||||||||||||||| |||||| |||||| ||||||||||
Db    1228 gacgggaaataccacctattcggcagcagggggaacttgccgagcgcagcggccatatc 1287

Qy     193 ggattgggaaacatacaaagccatcagttgggccacctgatgattcaacaggcggccgtt 252
           |||||||||| |||||||||||||||||||| |||||||||||||||||||||||| ||
Db    1288 ggattgggaaaaatacaaagccatcagttgggcaacctgatgattcaacaggcggccatt 1347

Qy     253 gaaggaaatatcggctacattgtccgcttttccgatcacgggcacaaattccattcgccc 312
           |||||||||||||||||||||||||||||||||||||||||||| || ||||||| |||
Db    1348 aaaggaaatatcggctacattgtccgcttttccgatcacgggcacgaagtccattccccc 1407

Qy     313 ttcgacaaccatgcctcacattccgattctgacgaagccggtagtcccgttgacggattc 372
           |||||||||||||||||||||||||||||||| |||||||||||||||||||||||||
Db    1408 ttcgacaaccatgcctcacattccgattctgatgaagccggtagtcccgttgacggattt 1467

Qy     373 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 432
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1468 agcctttaccgcatccattgggacggatacgaacaccatcccgccgacggctatgacggg 1527

Qy     433 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 492
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1528 ccacagggcggcggctatcccgctcccaaaggcgcgagggatatatacagctacgacata 1587

Qy     493 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 552
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1588 aaaggcgttgcccaaaatatccgcctcaacctgaccgacaaccgcagcaccggacaacgg 1647

Qy     553 cttgccgaccgtttccacaatgccggcgctatgctgacgcaaggagtaggcgacggattc 612
           |||||||||||||||||||||||||   ||||||||||||||||||||||||||||||
Db    1648 cttgccgaccgtttccacaatgccggtagtatgctgacgcaaggagtaggcgacggattc 1707

Qy     613 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 672
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1708 aaacgcgccacccgatacagccccgagctggacagatcgggcaatgccgccgaagccttc 1767

Qy     673 aacggcactgcagatatcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgca 732
           |||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db    1768 aacggcactgcagatatcgttaaaaacatcatcggcgcggcaggagaaattgtcggcgca 1827

Qy     733 ggcgatgccgtgcagggtataagcgaaggctcaaacattgctgtcatgcacggcttgggt 792
           |||||||||||||||||| ||||||||||||||||||||||||||||||||||||||||
Db    1828 ggcgatgccgtgcagggcataagcgaaggctcaaacattgctgtcatgcacggcttgggt 1887

Qy     793 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 852
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1888 ctgctttccaccgaaaacaagatggcgcgcatcaacgatttggcagatatggcgcaactc 1947

Qy     853 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 912
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1948 aaagactatgccgcagcagccatccgcgattgggcagtccaaaaccccaatgccgcacaa 2007

Qy     913 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 972
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2008 ggcatagaagccgtcagcaatatctttatggcagccatccccatcaaagggattggagct 2067

Qy     973 gtccggggaaaatacggcttgggcggcatcacggcacatcctgtcaagcggtcgcagatg 1032
           || |||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db    2068 gttcggggaaaatacggcttgggcggcatcacggcacatcctatcaagcggtcgcagatg 2127

Qy    1033 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 1092
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2128 ggcgcgatcgcattgccgaaagggaaatccgccgtcagcgacaattttgccgatgcggca 2187

Qy    1093 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 1152
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2188 tacgccaaatacccgtccccttaccattcccgaaatatccgttcaaacttggagcagcgt 2247

Qy    1153 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 1212
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2248 tacggcaaagaaaacatcacctcctcaaccgtgccgccgtcaaacggcaaaaatgtcaaa 2307

Qy    1213 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 1272
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    2308 ctggcagaccaacgccacccgaagacaggcgtaccgtttgacggtaaagggtttccgaat 2367

Qy    1273 tttgagaagcacgtgaaatatgatacg 1299
           |||||||||||||||||||||||||||
Db    2368 tttgagaagcacgtgaaatatgatacg 2394


RESULT  22
AAA81489
ID   AAA81489 standard; DNA; 837096 BP.
XX
AC   AAA81489;
XX
DT   04-DEC-2000  (first entry)
XX
DE   N. meningitidis partial DNA sequence gnm_37 SEQ ID NO:37.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; genome; immunogenic;
KW   antigen; vaccine; diagnosis; infection; antibacterial; identification;
KW   Meningococcus B; MenB; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO200022430-A2.
XX
PD   20-APR-2000.
XX
PF   08-OCT-1999;   99WO-US23573.
XX
PR   09-OCT-1998;   98US-0103794.
PR   30-APR-1999;   99US-0132068.
XX
PA   (CHIR ) CHIRON CORP.
XX
PI   Frazer CM,  Hickey E,  Peterson J,  Tettelin H,  Venter JC;
PI   Masignani V,  Galeotti C,  Mora M,  Ratti G,  Scarselli M,  Scarlato V;
PI   Rappuoli R,  Pizza M;
XX
DR   WPI; 2000-318079/27.
```

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XX
PT   Isolated nucleotide sequences of Neisseria meningitidis which can be
PT   used in the diagnosis and treatment of N. meningitidis infection and
PT   other Neisserial infections, for example, N.gonorrhoea -
XX
PS   Claim 7; Page 629-865; 1760pp; English.
XX
CC   The present invention describes methods of obtaining immunogenic
CC   proteins from Neisseria genomic sequences. AAA81453 to AAA82414
CC   represent specifically claimed Neisseria meningitidis genomic DNA
CC   sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent
CC   Neisseria DNA sequences and their corresponding proteins; AAA81254 to
CC   AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the
CC   isolation of Neisseria meningitidis DNA sequences; and AAA81322 to
CC   AAA81452 represent Neisseria meningitidis MenB polynucleotide ORF
CC   sequences, which are all used in the exemplification of the present
CC   invention. The nucleic acid sequences, protein sequences, and antibodies
CC   against them, can be used in the manufacture of a composition. The
CC   composition can be used as a medicament (or in the manufacture of a
CC   medicament) for treating, preventing or diagnosing infection due to
CC   Neisserial bacteria. For example, some of the identified proteins could
CC   be components of vaccines against Meningococcus B; against all serotypes;
CC   and/or against all pathogenic Neissariae. Identification of sequences
CC   from the bacterium will also facilitate production of biological probes,
CC   particularly organism-specific probes. Attempts to make efficacious
CC   Meningococcus B vaccines have failed mainly due to antigen tolerance.
CC   Multivalent vaccines have also been tried but none have successfully
CC   overcome antigenic variability. The provision of further, complete
CC   sequences may provide an opportunity to identify secreted or surface
CC   exposed proteins that may be presumed targets for the immune system and
CC   which are not antigenically variable or at least more conserved than
CC   other more variable regions.
XX
SQ   Sequence 837096 BP; 207534 A; 227065 C; 205215 G; 197280 T; 2 other;


  Query Match             40.0%;  Score 754;  DB 21;  Length 837096;
  Best Local Similarity   94.0%;  Pred. No. 2.8e-219;
  Matches  784;  Conservative    0;  Mismatches   50;  Indels    0;  Gaps    0;

Qy    703 atcggcgcggcaggagaaattgtcggcgcaggcgatgccgtgcagggtataagcgaaggc 762
          ||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||||||
Db      1 atcggcgcggcaggagaaattgtcggcgcaggcgatgccgtgcagggcataagcgaaggc 60

Qy    763 tcaaacattgctgtcatgcacggcttgggtctgctttccaccgaaaacaagatggcgcgc 822
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 tcaaacattgctgtcatgcacggcttgggtctgctttccaccgaaaacaagatggcgcgc 120

Qy    823 atcaacgatttggcagatatggcgcaactcaaagactatgccgcagcagccatccgcgat 882
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 atcaacgatttggcagatatggcgcaactcaaagactatgccgcagcagccatccgcgat 180

Qy    883 tgggcagtccaaaaccccaatgccgcacaaggcatagaagccgtcagcaatatctttatg 942
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 tgggcagtccaaaaccccaatgccgcacaaggcatagaagccgtcagcaatatctttatg 240

Qy    943 gcagccatccccatcaaagggattggagctgtccggggaaaatacggcttgggcggcatc 1002
          |||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Db    241 gcagccatccccatcaaagggattggagctgttccggggaaaatacggcttgggcggcatc 300

Qy   1003 acggcacatcctgtcaagcggtcgcagatgggcgcgatcgcattgccgaaagggaaatcc 1062
          |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||
Db    301 acggcacatcctatcaagcggtcgcagatgggcgcgatcgcattgccgaaagggaaatcc 360

Qy   1063 gccgtcagcgacaattttgccgatgcggcatacgccaaataccgtccccttaccattcc 1122
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    361 gccgtcagcgacaattttgccgatgcggcatacgccaaataccgtccccttaccattcc 420

Qy   1123 cgaaatatccgttcaaacttggagcagcgttacggcaaagaaaacatcacctcctcaacc 1182
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    421 cgaaatatccgttcaaacttggagcagcgttacggcaaagaaaacatcacctcctcaacc 480

Qy   1183 gtgccgccgtcaaacggcaaaaatgtcaaactggcagaccaacgccacccgaagacaggc 1242
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    481 gtgccgccgtcaaacggcaaaaatgtcaaactggcagaccaacgccacccgaagacaggc 540

Qy   1243 gtaccgtttgacggtaaagggtttccgaattttgagaagcacgtgaaatatgatacgaag 1302
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    541 gtaccgtttgacggtaaagggtttccgaattttgagaagcacgtgaaatatgatacgaag 600

Qy   1303 ctcgatattcaagaattatcgggggggcggtatacctaaggctaagcctgtgtttgatgcg 1362
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    601 ctcgatattcaagaattatcgggggggcggtatacctaaggctaagcctgtgtttgatgcg 660

Qy   1363 aaaccgagatgggaggttgataggaagcttaataaattgacaactcgtgagcaggtggag 1422
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    661 aaaccgagatgggaggttgataggaagcttaataaattgacaactcgtgagcaggtggag 720

Qy   1423 aaaaatgttcaggaaacgagaagaaggagtcagagtagtcagtttaaagcccatgcgcaa 1482
          |||||||||||||||||  || |   | | |   |  ||| | ||||     ||||| |||
Db    721 aaaaatgttcaggaaataaggaacggtaatataaacagtaactttagccaacatgctcaa 780

Qy   1483 cgagaatgggaaaataaaacagggttagattttaatcattttataggtggtgat 1536
          | |||  |||||| ||| | |     |  |    || |  |||    ||  |||
Db    781 ctagagagggaaattaataaactaaaatctgccgatgaaattaattttgcagat 834


RESULT  23
AAZ12172
ID   AAZ12172 standard; DNA; 683 BP.
XX
AC   AAZ12172;
XX
DT   08-OCT-1999  (first entry)
XX
DE   Neisseria meningitidis partial ORF46 sequence.
XX
KW   Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW   treatment; Neisseria infection; meningitis; septicaemia; gonorrhea; ss.
XX
OS   Neisseria meningitidis.
XX
PN   WO9924578-A2.
XX
PD   20-MAY-1999.
XX
PF   09-OCT-1998;   98WO-IB01665.
XX
PR   01-SEP-1998;   98GB-0019016.
PR   06-NOV-1997;   97GB-0023516.
PR   14-NOV-1997;   97GB-0024190.
PR   18-NOV-1997;   97GB-0024386.
PR   27-NOV-1997;   97GB-0025158.
PR   10-DEC-1997;   97GB-0026147.
PR   14-JAN-1998;   98GB-0000759.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Grandi G,  Masignani V,  Pizza M,  Rappuoli R,  Scarlato V;
XX
DR   WPI; 1999-327407/27.
DR   P-PSDB; AAY38728.
XX
PT   Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
PT   diagnosis, treatment and prevention of infection
XX
PS   Claim 9; Page 273-274; 524pp; English.
XX
CC   Nucleotide sequences AAZ11972-Z12358 represent open reading frames
CC   (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode
CC   antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their
CC   fragments, their nucleic acids and antibodies are used for diagnosis,
CC   prevention (as vaccines) or treatment of Neisseria infections,
CC   such as meningitis, septicaemia and gonorrhea. Both organisms
CC   are closely related. Fragments of the nucleic acids are useful
CC   as hybridisation probes and antisense reagents.
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XX
SQ   Sequence 683 BP; 176 A; 202 C; 171 G; 131 T; 3 other;


  Query Match             34.1%;  Score 642.8;  DB 20;  Length 683;
  Best Local Similarity   96.0%;  Pred. No. 6e-187;
  Matches  656;  Conservative    1;  Mismatches   26;  Indels    0;  Gaps    0;

Qy      43 gcagtgtgcctgccgatgcatgcacacgcctcagatttggcaaacgatccctttatccgg 102
           |||||||||||| |||||||||||||||||||| |||||||||||||| | |||||||||
Db       1 gcagtgtgcctnccgatgcatgcacacgcctcanatttggcaaacgattcttttatccgg 60

Qy     103 caggttctcgaccgtcagcatttcgaacccgacgggaaataccacctattcggcagcagg 162
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 caggttctcgaccgtcagcatttcgaacccgacgggaaataccacctattcggcagcagg 120

Qy     163 ggggagcttgccnagcgcaacggccatatcggattgggaaacatacaaagccatcagttg 222
           ||||| |||||| ||||| |    |||||||||||||||| ||||||||||||||||||
Db     121 ggggaacttgccgagcgccagtctcatatcggattgggaaaaatacaaagccatcagttg 180

Qy     223 ggccacctgatgattcaacaggcggccgttgaaggaaatatcggctacattgtccgcttt 282
           ||| |||||||||||||||||||| || ||||||||||||||||||||||||||||||
Db     181 ggcaacctgatgattcaacaggcggccattaaaggaaatatcggctacattgtccgcttt 240

Qy     283 tccgatcacgggcacaaattccattcgcccttcgacaaccatgcctcacattccgattct 342
           ||||||||||||||| || ||||||| ||:||||||||||||||||||||||||||||||
Db     241 tccgatcacgggcacgaagtccattccccsttcgacaaccatgcctcacattccgattct 300

Qy     343 gacgaagccggtagtcccgttgacggattcagcctttaccgcatccattgggacggatac 402
           || |||||||||||||||||||||||| ||||||||||||||||||||||||||||||
Db     301 gatgaagccggtagtcccgttgacggatttagcctttaccgcatccattgggacggatac 360

Qy     403 gaacaccatcccgccgacggctatgacgggccacagggcggcggctatcccgctcccaaa 462
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     361 gaacaccatcccgccgacggctatgacgggccacagggcggcggctatcccgctcccaaa 420

Qy     463 ggcgcgagggatatatacagctacgacataaaaggcgttgcccaaaatatccgcctcaac 522
           |||||||||||||||||| ||||||||||||||||||||||||||||||||||||||||
Db     421 ggcgcgagggatatatacagttacgacataaaaggcgttgcccaaaatatccgcctcaac 480

Qy     523 ctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttccacaatgccggcgct 582
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||    |
Db     481 ctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttccacaatgccggtagt 540

Qy     583 atgctgacgcaaggagtaggcgacggattcaaacgcgccacccgatacagccccgagctg 642
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     541 atgctgacgcaaggagtaggcgacggattcaaacgcgccacccgatacagccccgagctg 600

Qy     643 gacagatcgggcaatgccgccgaagccttcaacggcactgcagatatcgtcaaaaacatc 702
           |||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     601 gacagatcgggcaatgccgccgaagccttcaacggcactgcagatatcgttaaaaacatc 660

Qy     703 atcggcgcggcaggagaaattgt 725
           |||||||| ||||||||||||||
Db     661 atcggcgctgcaggagaaattgt 683


RESULT  24
AAA81504/c
ID   AAA81504 standard; DNA; 684 BP.
XX
AC   AAA81504;
XX
DT   04-DEC-2000  (first entry)
XX
DE   N. meningitidis partial DNA sequence gnm_51 SEQ ID NO:51.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; genome; immunogenic;
KW   antigen; vaccine; diagnosis; infection; antibacterial; identification;
KW   Meningococcus B; MenB; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO200022430-A2.
XX
PD   20-APR-2000.
XX
PF   08-OCT-1999;   99WO-US23573.
XX
PR   09-OCT-1998;   98US-0103794.
PR   30-APR-1999;   99US-0132068.
XX
PA   (CHIR ) CHIRON CORP.
XX
PI   Frazer CM,  Hickey E,  Peterson J,  Tettelin H,  Venter JC;
PI   Masignani V,  Galeotti C,  Mora M,  Ratti G,  Scarselli M,  Scarlato V;
PI   Rappuoli R,  Pizza M;
XX
DR   WPI; 2000-318079/27.
XX
PT   Isolated nucleotide sequences of Neisseria meningitidis which can be
PT   used in the diagnosis and treatment of N. meningitidis infection and
PT   other Neisserial infections, for example, N.gonorrhoea -
XX
PS   Claim 7; Page 1351; 1760pp; English.
XX
CC   The present invention describes methods of obtaining immunogenic
CC   proteins from Neisseria genomic sequences. AAA81453 to AAA82414
CC   represent specifically claimed Neisseria meningitidis genomic DNA
CC   sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent
CC   Neisseria DNA sequences and their corresponding proteins; AAA81254 to
CC   AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the
CC   isolation of Neisseria meningitidis DNA sequences; and AAA81322 to
CC   AAA81452 represent Neisseria meningitidis MenB polynucleotide ORF
CC   sequences, which are all used in the exemplification of the present
CC   invention. The nucleic acid sequences, protein sequences, and antibodies
CC   against them, can be used in the manufacture of a composition. The
CC   composition can be used as a medicament (or in the manufacture of a
CC   medicament) for treating, preventing or diagnosing infection due to
CC   Neisserial bacteria. For example, some of the identified proteins could
CC   be components of vaccines against Meningococcus B; against all serotypes;
CC   and/or against all pathogenic Neissariae. Identification of sequences
CC   from the bacterium will also facilitate production of biological probes,
CC   particularly organism-specific probes. Attempts to make efficacious
CC   Meningococcus B vaccines have failed mainly due to antigen tolerance.
CC   Multivalent vaccines have also been tried but none have successfully
CC   overcome antigenic variability. The provision of further, complete
CC   sequences may provide an opportunity to identify secreted or surface
CC   exposed proteins that may be presumed targets for the immune system and
CC   which are not antigenically variable or at least more conserved than
CC   other more variable regions.
XX
SQ   Sequence 684 BP; 129 A; 175 C; 203 G; 176 T; 1 other;


  Query Match             34.0%;  Score 641.8;  DB 21;  Length 684;
  Best Local Similarity   96.9%;  Pred. No. 1.2e-186;
  Matches  663;  Conservative    1;  Mismatches   19;  Indels    1;  Gaps    1;

Qy      43 gcagtgtgcctgccgatgcatgcacacgcctcagatttggcaaacgatccctttatccgg 102
           |||||||||||||||||||||||||||||||||||||||||||||||| | |||||||||
Db     684 GCAGTGTGCCTGCCGATGCATGCACACGCCTCAGATTTGGCAAACGATTCTTTTATCCGG 625

Qy     103 caggttctcgaccgtcagcatttcgaacccgacgggaaataccacctattcggcagcagg 162
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     624 CAGGTTCTCGACCGTCAGCATTTCGAACCCGACGGGAAATACCACCTATTCGGCAGCAGG 565

Qy     163 ggggagcttgccnagcgca-acggccatatcggattgggaaacatacaaagccatcagtt 221
           ||||| |||||| |||||  |||:||||||||||||||| ||||||||||||||||||
Db     564 GGGGAACTTGCCGAGCGCAGTCGGYCATATCGGATTGGGAAAAATACAAAGCCATCAGTT 505

Qy     222 gggccacctgatgattcaacaggcggccgttgaaggaaatatcggctacattgtccgctt 281
           |||| |||||||||||||||||||| || ||||||||||||||||||||||||||||||
Db     504 GGGCAACCTGATGATTCAACAGGCGGCCATTAAAGGAAATATCGGCTACATTGTCCGCTT 445

Qy     282 ttccgatcacgggcacaaattccattcgcccttcgacaaccatgcctcacattccgattc 341
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          ||||||||||||||||| || ||||||| ||||||||||||||||||||||||||||||||
Db    444 TTCCGATCACGGGCACGAAGTCCATTCCCCCTTCGACAACCATGCCTCACATTCCGATTC 385

Qy    342 tgacgaagccggtagtcccgttgacggattcagcctttaccgcatccattgggacggata 401
          ||| ||||||||||||||||||||||||| ||||||||||||||||||||||||||||||
Db    384 TGATGAAGCCGGTAGTCCCGTTGACGGATTTAGCCTTTACCGCATCCATTGGGACGGATA 325

Qy    402 cgaacaccatcccgccgacggctatgacgggccacagggcggcggctatcccgctcccaa 461
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    324 CGAACACCATCCCGCCGACGGCTATGACGGGCCACAGGGCGGCGGCTATCCCGCTCCCAA 265

Qy    462 aggcgcgagggatatatacagctacgacataaaaggcgttgcccaaaatatccgcctcaa 521
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    264 AGGCGCGAGGGATATATACAGCTACGACATAAAAGGCGTTGCCCAAAATATCCGCCTCAA 205

Qy    522 cctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttccacaatgccggcgc 581
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    204 CCTGACCGACAACCGCAGCACCGGACAACGGCTTGCCGACCGTTTCCACAATGCCGGTAG 145

Qy    582 tatgctgacgcaaggagtaggcgacggattcaaacgcgccacccgatacagccccgagct 641
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    144 TATGCTGACGCAAGGAGTAGGCGACGGATTCAAACGCGCCACCCGATACAGCCCCGAGCT 85

Qy    642 ggacagatcgggcaatgccgccgaagccttcaacggcactgcagatatcgtcaaaaacat 701
          ||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     84 GGACAGATCGGGCAATGCCGCCGAAGCCTTCAACGGCACTGCAGATATCGTTAAAAACAT 25

Qy    702 catcggcgcggcaggagaaattgt 725
          ||||||||| ||||||||||||||
Db     24 CATCGGCGCTGCAGGAGAAATTGT 1
```

RESULT 25
AAZ54162/c
ID AAZ54162 standard; DNA; 396 BP.
XX
AC AAZ54162;
XX
DT 21-MAR-2000 (first entry)
XX
DE Neisseria gonorrheae ORF 686 partial DNA sequence SEQ ID NO:2273.
XX
KW Neisseria meningitidis; Neisseria gonorrheae; antigen; vaccine;
KW antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KW antibacterial; gene therapy; ds.
XX
OS Neisseria gonorrheae.
XX
PN WO9957280-A2.
XX
PD 11-NOV-1999.
XX
PF 30-APR-1999; 99WO-US09346.
XX
PR 01-MAY-1998; 98US-0083758.
PR 31-JUL-1998; 98US-0094869.
PR 02-SEP-1998; 98US-0098994.
PR 02-SEP-1998; 98US-0099062.
PR 09-OCT-1998; 98US-0103749.
PR 09-OCT-1998; 98US-0103794.
PR 09-OCT-1998; 98US-0103796.
PR 25-FEB-1999; 99US-0121528.
XX
PA (CHIR) CHIRON CORP.
PA (GENO-) INST GENOMIC RES.
XX
PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;
PI Petersen J, Pizza M, Rappuoli R, Ratti G, Scalato E, Scarselli M;
PI Tettelin H, Venter JC;
XX
DR WPI; 2000-062150/05.
DR P-PSDB; AAY75400.
XX
PT Novel Neisserial polypeptides predicted to be useful antigens for
PT vaccines and diagnostics -
XX
PS Claim 7; Page 1100; 1453pp; English.
XX
CC AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941
CC represent novel Neisseria meningitis and N. gonorrheae polynucleotides
CC and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ55473 represent
CC PCR primers used in the exemplification of the present invention. The
CC polypeptides, the polynucleotides, antibodies and compositions of
CC the invention can be used as vaccines, as diagnostic reagents, and as
CC immunogenic compositions. The polypeptides can be used in the
CC manufacture of medicaments for treating or preventing infection due to
CC Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC presence of Neisseria bacteria, or to raise antibodies. They may also
CC be used to screen for agonists or antagonists, which may themselves
CC have use as antibacterial agents. The polynucleotides of the invention
CC may also be used in gene therapy protocols.
XX
SQ Sequence 396 BP; 62 A; 104 C; 127 G; 103 T; 0 other;

```
  Query Match             21.0%;  Score 396;  DB 21;  Length 396;
  Best Local Similarity   100.0%;  Pred. No. 3.4e-111;
  Matches  396;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy    328 tcacattccgattctgacgaagccggtagtcccgttgacggattcagcctttaccgcatc 387
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    396 TCACATTCCGATTCTGACGAAGCCGGTAGTCCCGTTGACGGATTCAGCCTTTACCGCATC 337

Qy    388 cattgggacggatacgaacaccatcccgccgacggctatgacgggccacagggcggcggc 447
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    336 CATTGGGACGGATACGAACACCATCCCGCCGACGGCTATGACGGGCCACAGGGCGGCGGC 277

Qy    448 tatcccgctcccaaaggcgcgagggatatatacagctacgacataaaaggcgttgcccaa 507
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    276 TATCCCGCTCCCAAAGGCGCGAGGGATATATACAGCTACGACATAAAAGGCGTTGCCCAA 217

Qy    508 aatatccgcctcaacctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttc 567
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    216 AATATCCGCCTCAACCTGACCGACAACCGCAGCACCGGACAACGGCTTGCCGACCGTTTC 157

Qy    568 cacaatgccggcgctatgctgacgcaaggagtaggcgacggattcaaacgcgccacccga 627
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    156 CACAATGCCGGCGCTATGCTGACGCAAGGAGTAGGCGACGGATTCAAACGCGCCACCCGA 97

Qy    628 tacagccccgagctggacagatcgggcaatgccgccgaagccttcaacggcactgcagat 687
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     96 TACAGCCCCGAGCTGGACAGATCGGGCAATGCCGCCGAAGCCTTCAACGGCACTGCAGAT 37

Qy    688 atcgtcaaaaacatcatcggcgcggcaggagaaatt 723
          ||||||||||||||||||||||||||||||||||||
Db     36 ATCGTCAAAAACATCATCGGCGCGGCAGGAGAAATT 1
```

RESULT 26
AAZ54163/c
ID AAZ54163 standard; DNA; 492 BP.
XX
AC AAZ54163;
XX
DT 21-MAR-2000 (first entry)
XX
DE Neisseria meningitidis ORF 686 partial DNA sequence SEQ ID NO:2275.
XX
KW Neisseria meningitidis; Neisseria gonorrheae; antigen; vaccine;
KW antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KW antibacterial; gene therapy; ds.
XX
OS Neisseria meningitidis.
XX
PN WO9957280-A2.
XX

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PD   11-NOV-1999.
XX
PF   30-APR-1999;   99WO-US09346.
XX
PR   01-MAY-1998;   98US-0083758.
PR   31-JUL-1998;   98US-0094869.
PR   02-SEP-1998;   98US-0098994.
PR   02-SEP-1998;   98US-0099062.
PR   09-OCT-1998;   98US-0103749.
PR   09-OCT-1998;   98US-0103794.
PR   09-OCT-1998;   98US-0103796.
PR   25-FEB-1999;   99US-0121528.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Fraser C,  Galeotti C,  Grandi G,  Hickey E,  Masignani V,  Mora M;
PI   Petersen J,  Pizza M,  Rappuoli R,  Ratti G,  Scalato E,  Scarselli M;
PI   Tettelin H,  Venter JC;
XX
DR   WPI; 2000-062150/05.
DR   P-PSDB; AAY75401.
XX
PT   Novel Neisserial polypeptides predicted to be useful antigens for
PT   vaccines and diagnostics  -
XX
PS   Claim 7; Page 1101; 1453pp; English.
XX
CC   AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941
CC   represent novel Neisseria meningitis and N. gonorrheae polynucleotides
CC   and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ55473 represent
CC   PCR primers used in the exemplification of the present invention. The
CC   polypeptides, the polynucleotides, antibodies and compositions of
CC   the invention can be used as vaccines, as diagnostic reagents, and as
CC   immunogenic compositions. The polypeptides can be used in the
CC   manufacture of medicaments for treating or preventing infection due to
CC   Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC   presence of Neisseria bacteria, or to raise antibodies. They may also
CC   be used to screen for agonists or antagonists, which may themselves
CC   have use as antibacterial agents. The polynucleotides of the invention
CC   may also be used in gene therapy protocols.
XX
SQ   Sequence 492 BP; 82 A; 120 C; 154 G; 124 T; 12 other;


  Query Match             20.4%;  Score 385.4;  DB 21;  Length 492;
  Best Local Similarity   94.5%;  Pred. No. 7e-108;
  Matches  392;  Conservative    0;  Mismatches   23;  Indels    0;  Gaps    0;

Qy     328 tcacattccgattctgacgaagccggtagtcccgttgacggattcagcctttaccgcatc 387
           |||||||||||||||| |||||||||||||||||||||||||| ||||||||||||||||
Db     492 TCACATTCCGATTCTGATGAAGCCGGTAGTCCCGTTGACGGATTTAGCCTTTACCGCATC 433

Qy     388 cattgggacggatacgaacaccatcccgccgacggctatgacgggccacagggcggcggc 447
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     432 CATTGGGACGGATACGAACACCATCCCGCCGACGGCTATGACGGGCCACAGGGCGGCGGC 373

Qy     448 tatcccgctcccaaaggcgcgagggatatatacagctacgacataaaaggcgttgcccaa 507
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     372 TATCCCGCTCCCAAAGGCGCGAGGGATATATACAGCTACGACATAAAAGGCGTTGCCCAA 313

Qy     508 aatatccgcctcaacctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttc 567
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     312 AATATCCGCCTCAACCTGACCGACAACCGCAGCACCGGACAACGGCTTGCCGACCGTTTC 253

Qy     568 cacaatgccggcgctatgctgacgcaaggagtaggcgacggattcaaacgcgccacccga 627
           |||||||||||   ||||||||||||||||||||||||||||||||||||||||||||||
Db     252 CACAATGCCGGTAGTATGCTGACGCAAGGAGTAGGCGACGGATTCAAACGCGCCACCCGA 193

Qy     628 tacagccccgagctggacagatcgggcaatgccgccgaagccttcaacggcactgcagat 687
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     192 TACAGCCCCGAGCTGGACAGATCGGGCAATGCCGCCGAAGCCTTCAACGGCACTGCAGAT 133

Qy     688 atcgtcaaaaacatcatcggcgcggcaggagaaattgtcggcgcaggcgatgccg 742
           ||||| |||||||||||||||| ||||||||||||                |||
Db     132 ATCGTTAAAAACATCATCGGCGCTGCAGGAGAAATTNNNNNNNNNNNNCGCTCCG 78


RESULT  27
AAZ54164/c
ID   AAZ54164 standard; DNA; 396 BP.
XX
AC   AAZ54164;
XX
DT   21-MAR-2000  (first entry)
XX
DE   Neisseria meningitidis ORF 686 partial DNA sequence SEQ ID NO:2277.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; antigen; vaccine;
KW   antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KW   antibacterial; gene therapy; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO9957280-A2.
XX
PD   11-NOV-1999.
XX
PF   30-APR-1999;   99WO-US09346.
XX
PR   01-MAY-1998;   98US-0083758.
PR   31-JUL-1998;   98US-0094869.
PR   02-SEP-1998;   98US-0098994.
PR   02-SEP-1998;   98US-0099062.
PR   09-OCT-1998;   98US-0103749.
PR   09-OCT-1998;   98US-0103794.
PR   09-OCT-1998;   98US-0103796.
PR   25-FEB-1999;   99US-0121528.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Fraser C,  Galeotti C,  Grandi G,  Hickey E,  Masignani V,  Mora M;
PI   Petersen J,  Pizza M,  Rappuoli R,  Ratti G,  Scalato E,  Scarselli M;
PI   Tettelin H,  Venter JC;
XX
DR   WPI; 2000-062150/05.
DR   P-PSDB; AAY75402.
XX
PT   Novel Neisserial polypeptides predicted to be useful antigens for
PT   vaccines and diagnostics  -
XX
PS   Claim 7; Page 1101; 1453pp; English.
XX
CC   AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941
CC   represent novel Neisseria meningitis and N. gonorrheae polynucleotides
CC   and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ55473 represent
CC   PCR primers used in the exemplification of the present invention. The
CC   polypeptides, the polynucleotides, antibodies and compositions of
CC   the invention can be used as vaccines, as diagnostic reagents, and as
CC   immunogenic compositions. The polypeptides can be used in the
CC   manufacture of medicaments for treating or preventing infection due to
CC   Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC   presence of Neisseria bacteria, or to raise antibodies. They may also
CC   be used to screen for agonists or antagonists, which may themselves
CC   have use as antibacterial agents. The polynucleotides of the invention
CC   may also be used in gene therapy protocols.
XX
SQ   Sequence 396 BP; 66 A; 103 C; 122 G; 105 T; 0 other;


  Query Match             20.4%;  Score 384.8;  DB 21;  Length 396;
  Best Local Similarity   98.2%;  Pred. No. 9.4e-108;
  Matches  389;  Conservative    0;  Mismatches    7;  Indels    0;  Gaps    0;

Qy     328 tcacattccgattctgacgaagccggtagtcccgttgacggattcagcctttaccgcatc 387
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          |||||||||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||
Db    396 TCACATTCCGATTCTGATGAAGCCGGTAGTCCCGTTGACGGATTCAGCCTTTACCGCATC 337

Qy    388 cattgggacggatacgaacaccatcccgccgacggctatgacgggccacagggcggcggc 447
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    336 CATTGGGACGGATACGAACACCATCCCGCCGACGGCTATGACGGGCCACAGGGCGGCGGC 277

Qy    448 tatcccgctcccaaaggcgcgagggatatatacagctacgacataaaaggcgttgcccaa 507
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    276 TATCCCGCTCCCAAAGGCGCGAGGGATATATACAGCTACGACATAAAAGGCGTTGCCCAA 217

Qy    508 aatatccgcctcaacctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttc 567
          |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||||
Db    216 AATATCCGCCTCAACCTGACCGACAACCGCAGCACCGGACAACGGCTTGTCGACCGTTTC 157

Qy    568 cacaatgccggcgctatgctgacgcaaggagtaggcgacggattcaaacgcgccacccga 627
          |||||| ||||   ||||||||||||||||||||||||||||||||||||||||||||||||
Db    156 CACAATACCGGTAGTATGCTGACGCAAGGAGTAGGCGACGGATTCAAACGCGCCACCCGA 97

Qy    628 tacagccccgagctggacagatcgggcaatgccgccgaagccttcaacggcactgcagat 687
          |||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db     96 TACAGCCCCGAGCTGGACAGATCGGGCAATGCCGCCGAAGCTTTCAACGGCACTGCAGAT 37

Qy    688 atcgtcaaaaacatcatcggcgcggcaggagaaatt 723
          ||||||||||||||||||||||||||||||||||
Db     36 ATCGTCAAAAACATCATCGGCGCGGCAGGAGAAATT 1


RESULT 28
AAA81377
ID   AAA81377 standard; DNA; 380 BP.
XX
AC   AAA81377;
XX
DT   04-DEC-2000 (first entry)
XX
DE   N. meningitidis MenB polynucleotide sequence ORF number 54.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; genome; immunogenic;
KW   antigen; vaccine; diagnosis; infection; antibacterial; identification;
KW   Meningococcus B; MenB; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO200022430-A2.
XX
PD   20-APR-2000.
XX
PF   08-OCT-1999;   99WO-US23573.
XX
PR   09-OCT-1998;   98US-0103794.
PR   30-APR-1999;   99US-0132068.
XX
PA   (CHIR ) CHIRON CORP.
XX
PI   Frazer CM, Hickey E, Peterson J, Tettelin H, Venter JC;
PI   Masignani V, Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V;
PI   Rappuoli R, Pizza M;
XX
DR   WPI; 2000-318079/27.
XX
PT   Isolated nucleotide sequences of Neisseria meningitidis which can be
PT   used in the diagnosis and treatment of N. meningitidis infection and
PT   other Neisserial infections, for example, N.gonorrhoea -
XX
PS   Disclosure; Page 213; 1760pp; English.
XX
CC   The present invention describes methods of obtaining immunogenic
CC   proteins from Neisseria genomic sequences. AAA81453 to AAA82414
CC   represent specifically claimed Neisseria meningitidis genomic DNA
CC   sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent
CC   Neisseria DNA sequences and their corresponding proteins; AAA81254 to
CC   AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the
CC   isolation of Neisseria meningitidis DNA sequences; and AAA81322 to
CC   AAA81452 represent Neisseria meningitidis MenB polynucleotide ORF
CC   sequences, which are all used in the exemplification of the present
CC   invention. The nucleic acid sequences, protein sequences, and antibodies
CC   against them, can be used in the manufacture of a composition. The
CC   composition can be used as a medicament (or in the manufacture of a
CC   medicament) for treating, preventing or diagnosing infection due to
CC   Neisserial bacteria. For example, some of the identified proteins could
CC   be components of vaccines against Meningococcus B; against all serotypes;
CC   and/or against all pathogenic Neissariae. Identification of sequences
CC   from the bacterium will also facilitate production of biological probes,
CC   particularly organism-specific probes. Attempts to make efficacious
CC   Meningococcus B vaccines have failed mainly due to antigen tolerance.
CC   Multivalent vaccines have also been tried but none have successfully
CC   overcome antigenic variability. The provision of further, complete
CC   sequences may provide an opportunity to identify secreted or surface
CC   exposed proteins that may be presumed targets for the immune system and
CC   which are not antigenically variable or at least more conserved than
CC   other more variable regions.
XX
SQ   Sequence 380 BP; 127 A; 54 C; 108 G; 90 T; 1 other;


  Query Match             17.7%;  Score 333.4;  DB 21;  Length 380;
  Best Local Similarity   99.4%;  Pred. No. 5.9e-92;
  Matches  334;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy   1320 atcgggggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggt 1379
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     45 atcgggggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggt 104

Qy   1380 tgataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaac 1439
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    105 tgataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaac 164

Qy   1440 gagaagaaggagtcagagtagtcagtttaaagcccatgcgcaacgagaatgggaaaataa 1499
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    165 gagaagaaggagtcagagtagtcagtttaaagcccatgcgcaacgagaatgggaaaataa 224

Qy   1500 aacagggttagattttaatcattttataggtggtgatatcaataagaaaggcacagtaac 1559
          |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||||||||
Db    225 aacagggttagattttaatcattttataggtggtgatatcaataaaaaaggcacagtaac 284

Qy   1560 aggagggcatagtctaacccgtggtgatgtacgggtgatacaacaaacctcggcacctga 1619
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    285 aggagggcatagtctaacccgtggtgatgtacgggtgatacaacaaacctcggcacctga 344

Qy   1620 taaacatggggtttatcaagcgacagtggaaattaa 1655
          |||||||||||||||||||||||||||||||| |
Db    345 taaacatggggtttatcaagcgacagtggaaattna 380


RESULT 29
AAZ12171
ID   AAZ12171 standard; DNA; 381 BP.
XX
AC   AAZ12171;
XX
DT   08-OCT-1999 (first entry)
XX
DE   Neisseria meningitidis partial ORF46 sequence.
XX
KW   Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW   treatment; Neisseria infection; meningitis; septicaemia; gonorrhea; ss.
XX
OS   Neisseria meningitidis.
XX
PN   WO9924578-A2.
XX
PD   20-MAY-1999.
XX
PF   09-OCT-1998;   98WO-IB01665.
XX
```

```
PR   01-SEP-1998;   98GB-0019016.
PR   06-NOV-1997;   97GB-0023516.
PR   14-NOV-1997;   97GB-0024190.
PR   18-NOV-1997;   97GB-0024386.
PR   27-NOV-1997;   97GB-0025158.
PR   10-DEC-1997;   97GB-0026147.
PR   14-JAN-1998;   98GB-0000759.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Grandi G,  Masignani V,  Pizza M,  Rappuoli R,  Scarlato V;
XX
DR   WPI; 1999-327407/27.
DR   P-PSDB; AAY38727.
XX
PT   Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
PT   diagnosis, treatment and prevention of infection
XX
PS   Claim 9; Page 273; 524pp; English.
XX
CC   Nucleotide sequences AAZ11972-Z12358 represent open reading frames
CC   (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode
CC   antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their
CC   fragments, their nucleic acids and antibodies are used for diagnosis,
CC   prevention (as vaccines) or treatment of Neisseria infections,
CC   such as meningitis, septicaemia and gonorrhea. Both organisms
CC   are closely related. Fragments of the nucleic acids are useful
CC   as hybridisation probes and antisense reagents.
XX
SQ   Sequence 381 BP; 127 A; 54 C; 108 G; 90 T; 2 other;


  Query Match             17.1%;  Score 322.4;  DB 20;  Length 381;
  Best Local Similarity   99.1%;  Pred. No. 1.4e-88;
  Matches  334;  Conservative    0;  Mismatches    2;  Indels    1;  Gaps    1;

Qy   1320 atcgggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggt 1379
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     45 atcgggggcggtatacctaaggctaagcctgtgtttgatgcgaaaccgagatgggaggt 104

Qy   1380 tgataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaac 1439
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    105 tgataggaagcttaataaattgacaactcgtgagcaggtggagaaaaatgttcaggaaac 164

Qy   1440 gagaagaaggagtcagagtagtcagtttaaagcccatgcgcaacgagaatgggaaaataa 1499
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    165 gagaagaaggagtcagagtagtcagtttaaagcccatgcgcaacgagaatgggaaaataa 224

Qy   1500 aacagggttagattttaatcattttataggtggtgatatcaataagaaaggcacagtaac 1559
           ||||||||||||||||||||||||||||||||||||||||| ||||||||||||||
Db    225 aacagggttagattttaatcattttataggtggtgatatcaataaaaaaggcacagtaac 284

Qy   1560 aggagggcatagtctaacccgtggtgatgtacgggtgatacaacaaacctcggcacctga 1619
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    285 aggagggcatagtctaacccgtggtgatgtacgggtgatacaacaaacctcggcacctga 344

Qy   1620 taaacatggggt-ttatcaagcgacagtggaaattaa 1655
           |||||||||||| |||||||||||||||||||||| |
Db    345 taaacatggggtnttatcaagcgacagtggaaattna 381


RESULT  30
AAZ54260
ID   AAZ54260 standard; DNA; 1731 BP.
XX
AC   AAZ54260;
XX
DT   21-MAR-2000  (first entry)
XX
DE   Neisseria gonorrheae ORF 730 partial DNA sequence SEQ ID NO:2469.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; antigen; vaccine;
KW   antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KW   antibacterial; gene therapy; ds.
XX
OS   Neisseria gonorrheae.
XX
PN   WO9957280-A2.
XX
PD   11-NOV-1999.
XX
PF   30-APR-1999;   99WO-US09346.
XX
PR   01-MAY-1998;   98US-0083758.
PR   31-JUL-1998;   98US-0094869.
PR   02-SEP-1998;   98US-0098994.
PR   02-SEP-1998;   98US-0099062.
PR   09-OCT-1998;   98US-0103749.
PR   09-OCT-1998;   98US-0103794.
PR   09-OCT-1998;   98US-0103796.
PR   25-FEB-1999;   99US-0121528.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Fraser C,  Galeotti C,  Grandi G,  Hickey E,  Masignani V,  Mora M;
PI   Petersen J,  Pizza M,  Rappuoli R,  Ratti G,  Scalato E,  Scarselli M;
PI   Tettelin H,  Venter JC;
XX
DR   WPI; 2000-062150/05.
DR   P-PSDB; AAY75498.
XX
PT   Novel Neisserial polypeptides predicted to be useful antigens for
PT   vaccines and diagnostics
XX
PS   Claim 7; Page 1181; 1453pp; English.
XX
CC   AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941
CC   represent novel Neisseria meningitis and N. gonorrheae polynucleotides
CC   and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ55473 represent
CC   PCR primers used in the exemplification of the present invention. The
CC   polypeptides, the polynucleotides, antibodies and compositions of
CC   the invention can be used as vaccines, as diagnostic reagents, and as
CC   immunogenic compositions. The polypeptides can be used in the
CC   manufacture of medicaments for treating or preventing infection due to
CC   Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC   presence of Neisseria bacteria, or to raise antibodies. They may also
CC   be used to screen for agonists or antagonists, which may themselves
CC   have use as antibacterial agents. The polynucleotides of the invention
CC   may also be used in gene therapy protocols.
XX
SQ   Sequence 1731 BP; 507 A; 521 C; 418 G; 285 T; 0 other;


  Query Match             15.4%;  Score 290.4;  DB 21;  Length 1731;
  Best Local Similarity   57.7%;  Pred. No. 2.4e-78;
  Matches  538;  Conservative    0;  Mismatches  392;  Indels    3;  Gaps    1;

Qy     35 ccatactggcagtgtgcctgccgatgcatgcacacgcctcagatttggcaaacgatccct 94
          || ||  ||| ||    ||      ||  || | |||  | || |||||  | || || |
Db     44 ccgtagcggcggtcgcactcatacagcccgccctcgcggcggacttggcgcaagacccgt 103

Qy     95 ttatccggcaggttctcgaccgtcagcatttcgaacccgacgggaaataccacctattcg 154
          | ||     |      | | || ||||| | |||||||| ||| |||||||||||| ||||
Db    104 tcattaccgataacacccaacggcagcactacgaacccggcggcaaataccacctcttcg 163

Qy    155 gcagc---agggggggagcttgccnagcgcaacggccatatcggattgggaaacatacaaa 211
          ||  |    | ||     || || | |||| |||| | |||    |     |     | |
Db    164 gcgacccgcgcggcagcgtttccgaccgcaccggcaaaatcaacgtcatccaagactata 223

Qy    212 gccatcagttgggccacctgatgattcaacaggcggccgttgaaggaaatatcggctaca 271
          ||| ||| ||||| ||||| | || ||||||||||||  |  |||| ||| | || ||||
Db    224 cccaccagatgggcaacctgctcatccaacaggcggcaatccaaggcaatcttggttaca 283

Qy    272 ttgtccgcttttccgatcacgggcacaaattccattcgcccttcgacaaccatgcctcac 331
           |||||||||||||  ||||| ||| ||   ||  | |||||||||||||| ||| |
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Db    284 ccgtccgcttttccggacacggacacgaagaacacgccccccttcgacaaccacgccgccg 343

Qy    332 attccgattctgacgaagccggtagtcccgttgacggattcagcctttaccgcatccatt 391
          |   ||     || |||   || |     |  ||||| || | | | |||||  || | |
Db    344 acagcgcaagcgaagaaaaaggcaacgttgacgacggctttaccgtgtaccggctcaact 403

Qy    392 gggacggatacgaacaccatcccgccgacggctatgacgggccacagggcggcggctatc 451
          |||| ||| |||||||| |||||||||| | ||| ||||| ||  |||||||   || |
Db    404 gggaaggacacgaacatcatcccgccgatgcctacgacggcccgaagggcggcaattacc 463

Qy    452 ccgctcccaaaggcgcgagggatatatacagctacgacataaaaggcgttgcccaaaata 511
          ||   || |  ||||  | ||   |||| ||| || | || ||||   ||||  | ||
Db    464 ccaaacctacgggcgcacgagacgaatacacctatcacgtcaacggcacagcccgcagta 523

Qy    512 tccgcctcaacctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttccaca 571
          ||   ||||| | |||||||| |||||||| | | ||||  |   ||||   | | |||
Db    524 tcaaactcaatccgaccgacacccgcagcatccggcaacgcatattcgacaactacaaca 583

Qy    572 atgccggcgctatgctgacgcaaggagtaggcgacggattcaaacgcgccacccgatata 631
          |  ||||   |  |  | | | | | || |   || |        |   |||
Db    584 acctcggcagcaatttctccgaccgcgccgatgaagccaacagaaaaatgttcgagcaca 643

Qy    632 gccccgagctggacagatcgggcaatgccgccgaagccttcaacggcactgcagatatcg 691
             || |||| ||| | | ||||||   |  ||     |||||||   || |    ||
Db    644 atgccaagctcgaccgctggggcaacagcatggagtttgtcaacggcgtcgccgccggcg 703

Qy    692 tcaaaaacatcatcggcgcggcaggagaaattgtcggcgcaggcgatgccgtgcagggta 751
             |||  | |   |  || || |||   | |||  ||||||    ||  | || |
Db    704 cgctcaacccctttatcagcgcgggcgaagccttgggcataggcgacatactgtacggaa 763

Qy    752 taagcgaaggctcaaacattgctgtcatgcacggcttgggtctgctttccaccgaaaaca 811
             || | | |  | |||  || |  |||| |  | | |  |   |  || ||||   ||
Db    764 cgcgctatgccatagacaaagccgcgatgcgcaacatcgccccttacccgccgagggca 823

Qy    812 agatggcgcgcatcaacgatttggcagatatggcgcaactcaaagactatgccgcagcag 871
          |  | ||   ||||  ||  ||||       ||||    |  || |  || |    | ||
Db    824 aattcgccgccatcggcggcttgggcagcgcggcgggctttgaaaaaaatacgcgcgaag 883

Qy    872 ccatccgcgattgggcagtccaaaaccccaatgccgcacaaggcatagaagccgtcagca 931
          || |   |  |||  |    ||||||||||||||||  ||  | | ||||||  |   ||
Db    884 ccgttgaccggtggatacaggaaaaccccaatgccgccgaaaccgtcgaagccctggtca 943

Qy    932 atatctttatggcagccatccccatcaaaggga 964
          |  || |  |  ||||   ||  ||   ||
Db    944 acgtcctgccgtttgccaaagtcaaaaacctga 976


RESULT 31
AAZ54261
ID   AAZ54261 standard; DNA; 1404 BP.
XX
AC   AAZ54261;
XX
DT   21-MAR-2000 (first entry)
XX
DE   Neisseria meningitidis ORF 730 partial DNA sequence SEQ ID NO:2471.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; antigen; vaccine;
KW   antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KW   antibacterial; gene therapy; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO9957280-A2.
XX
PD   11-NOV-1999.
XX
PF   30-APR-1999;   99WO-US09346.
XX
PR   01-MAY-1998;   98US-0083758.
PR   31-JUL-1998;   98US-0094869.
PR   02-SEP-1998;   98US-0098994.
PR   02-SEP-1998;   98US-0099062.
PR   09-OCT-1998;   98US-0103749.
PR   09-OCT-1998;   98US-0103794.
PR   09-OCT-1998;   98US-0103796.
PR   25-FEB-1999;   99US-0121528.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;
PI   Petersen J, Pizza M, Rappuoli R, Ratti G, Scalato E, Scarselli M;
PI   Tettelin H, Venter JC;
XX
DR   WPI; 2000-062150/05.
DR   P-PSDB; AAY75499.
XX
PT   Novel Neisserial polypeptides predicted to be useful antigens for
PT   vaccines and diagnostics -
XX
PS   Claim 7; Page 1181-1182; 1453pp; English.
XX
CC   AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941
CC   represent novel Neisseria meningitis and N. gonorrheae polynucleotides
CC   and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ55473 represent
CC   PCR primers used in the exemplification of the present invention. The
CC   polypeptides, the polynucleotides, antibodies and compositions of
CC   the invention can be used as vaccines, as diagnostic reagents, and as
CC   immunogenic compositions. The polypeptides can be used in the
CC   manufacture of medicaments for treating or preventing infection due to
CC   Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC   presence of Neisseria bacteria, or to raise antibodies. They may also
CC   be used to screen for agonists or antagonists, which may themselves
CC   have use as antibacterial agents. The polynucleotides of the invention
CC   may also be used in gene therapy protocols.
XX
SQ   Sequence 1404 BP; 430 A; 397 C; 333 G; 244 T; 0 other;


  Query Match             15.0%;  Score 283.4;  DB 21;  Length 1404;
  Best Local Similarity   57.5%;  Pred. No. 3.1e-76;
  Matches  528;  Conservative    0;  Mismatches  387;  Indels    3;  Gaps    1;

Qy     35 ccatactggcagtgtgcctgccgatgcatgcacacgcctcagatttggcaaacgatccct 94
          || ||  ||| |     ||      ||  || | |||  | || |||||  | || || |
Db     44 ccgtagcggcggccgcactcatacagcccgccctcgcggcggacttggcgcaagacccgt 103

Qy     95 ttatccggcaggttctcgaccgtcagcatttcgaacccgacgggaaataccacctattcg 154
          | ||     |      | | || ||||| | |||||||| ||| ||||||||||| ||||
Db    104 tcattaccgataacgcccaacggcagcactacgaacccggcggcaaataccacctcttcg 163

Qy    155 gcagcaggggggagc---ttgccnagcgcaacggccatatcggattgggaaacatacaaa 211
          ||  |  | | |      || || | |||| |||| | |||    |     |     | |
Db    164 gcgacccgcgcggcagcgtttccgaccgcaccggcaaaatcaacgtcatccaagactata 223

Qy    212 gccatcagttgggccacctgatgattcaacaggcggccgttgaaggaaatatcggctaca 271
           ||| ||| ||||| ||||| | || |||||||||   | |  | || |  |||||||||
Db    224 cccaccagatgggcaacctgctcatccaacaggcaaacatcaacggcacaatcggctacc 283

Qy    272 ttgtccgcttttccgatcacgggcacaaattccattcgcccttcgacaaccatgcctcac 331
              ||||||||||  ||||| ||| ||   ||  | ||||||||||||| ||| |
Db    284 acacccgcttttccggacacggacacgaagaacacgccccccttcgacaaccacgccgccg 343

Qy    332 attccgattctgacgaagccggtagtcccgttgacggattcagcctttaccgcatccatt 391
          |   ||     || |||   || |     |  || || || | | | |||||  || | |
Db    344 acagcgcgagcgaagaaaaaggcaacgttgacgaaggctttaccgtataccggctcaact 403

Qy    392 gggacggatacgaacaccatcccgccgacggctatgacgggccacagggcggcggctatc 451
          |||| ||| ||||||| |||||||||| | ||| |||||  ||  ||||||||   || |
Db    404 gggaaggacacgaacatcatcccgccgatgcctacgacggcccgaagggcggcaattacc 463

Qy    452 ccgctcccaaaggcgcgagggatatatacagctacgacataaaaggcgttgcccaaaata 511
          ||   || |  |||||  | ||   ||||| |||  || | | || |||   ||||  | ||
Db    464 ccaaacctacgggcgcacgagacgaatacacctatcacgtcaacggcacagcccgcagta 523
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Qy    512 tccgcctcaacctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttccaca 571
          ||   ||||| | |||||||| |||||||| | | |||||  |  |||||  || |  ||
Db    524 tcaaactcaatccgaccgacacccgcagcatccggcaacgcatatccgacaattacagca 583

Qy    572 atgccggcgctatgctgacgcaaggagtaggcgacggattcaaacgcgccacccgataca 631
          |  ||||  |  |  |  |  | |  |  || |    || |      .|    |||
Db    584 acctcggcagcaatttctccgaccgcgccgatgaagccaacagaaaaatgttcgagcaca 643

Qy    632 gccccgagctggacagatcgggcaatgccgccgaagccttcaacggcactgcagatatcg 691
            || |||| ||| | | |||||||   |   ||     ||||||||   || |    ||
Db    644 atgccaagctcgaccgctggggcaacagcatggagtttatcaacggcgtcgccgccggcg 703

Qy    692 tcaaaaacatcatcggcgcggcaggagaaattgtcggcgcaggcgatgccgtgcagggta 751
              |||  | |   |   || || |||    | |||  ||||||     || | || |
Db    704 cgctcaacccctttatcagcgcgggcgaagccttgggcataggcgacatactgtacggaa 763

Qy    752 taagcgaaggctcaaacattgctgtcatgcacggcttgggtctgctttccaccgaaaaca 811
            || | | |  | |||  || |  |||| |  | | |  |   |  || |||| ||
Db    764 cgcgctatgccatagacaaagccgcaatgcgcaacatcgccccctgcccgccgagggca 823

Qy    812 agatggcgcgcatcaacgatttggcagatatggcgcaactcaaagactatgccgcagcag 871
          |  | ||   ||||  ||  ||||      |||||    |  || |  || |    | ||
Db    824 aattcgccgtcatcggcggcttgggcagcgtggcgggctttgaaaagaatacgcgcgaag 883

Qy    872 ccatccgcgattgggcagtccaaaaccccaatgccgcacaaggcatagaagccgtcagca 931
          || |   |   |||  |    |||| ||||||||||  ||  | | |||||||||  ||
Db    884 ccgttgaccggtggatacaggaaaatcccaatgccgccgaaaccgtcgaagccgtcttca 943

Qy    932 atatctttatggcagcca 949
          |  |       |||||||
Db    944 acgttgccgcagcagcca 961
```

RESULT 32
AAA81467/c
ID AAA81467 standard; DNA; 25509 BP.
XX
AC AAA81467;
XX
DT 04-DEC-2000 (first entry)
XX
DE N. meningitidis partial DNA sequence gnm_15 SEQ ID NO:15.
XX
KW Neisseria meningitidis; Neisseria gonorrheae; genome; immunogenic;
KW antigen; vaccine; diagnosis; infection; antibacterial; identification;
KW Meningococcus B; MenB; ds.
XX
OS Neisseria meningitidis.
XX
PN WO200022430-A2.
XX
PD 20-APR-2000.
XX
PF 08-OCT-1999; 99WO-US23573.
XX
PR 09-OCT-1998; 98US-0103794.
PR 30-APR-1999; 99US-0132068.
XX
PA (CHIR) CHIRON CORP.
XX
PI Frazer CM, Hickey E, Peterson J, Tettelin H, Venter JC;
PI Masignani V, Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V;
PI Rappuoli R, Pizza M;
XX
DR WPI; 2000-318079/27.
XX
PT Isolated nucleotide sequences of Neisseria meningitidis which can be
PT used in the diagnosis and treatment of N. meningitidis infection and
PT other Neisserial infections, for example, N.gonorrhoea -
XX
PS Claim 7; Page 399-406; 1760pp; English.
XX
CC The present invention describes methods of obtaining immunogenic
CC proteins from Neisseria genomic sequences. AAA81453 to AAA82414
CC represent specifically claimed Neisseria meningitidis genomic DNA
CC sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent
CC Neisseria DNA sequences and their corresponding proteins; AAA81254 to
CC AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the
CC isolation of Neisseria meningitidis DNA sequences; and AAA81322 to
CC AAA81452 represent Neisseria meningitidis MenB polynucleotide ORF
CC sequences, which are all used in the exemplification of the present
CC invention. The nucleic acid sequences, protein sequences, and antibodies
CC against them, can be used in the manufacture of a composition. The
CC composition can be used as a medicament (or in the manufacture of a
CC medicament) for treating, preventing or diagnosing infection due to
CC Neisserial bacteria. For example, some of the identified proteins could
CC be components of vaccines against Meningococcus B; against all serotypes;
CC and/or against all pathogenic Neissariae. Identification of sequences
CC from the bacterium will also facilitate production of biological probes,
CC particularly organism-specific probes. Attempts to make efficacious
CC Meningococcus B vaccines have failed mainly due to antigen tolerance.
CC Multivalent vaccines have also been tried but none have successfully
CC overcome antigenic variability. The provision of further, complete
CC sequences may provide an opportunity to identify secreted or surface
CC exposed proteins that may be presumed targets for the immune system and
CC which are not antigenically variable or at least more conserved than
CC other more variable regions.
XX
SQ Sequence 25509 BP; 6157 A; 6156 C; 6549 G; 6647 T; 0 other;

Query Match 15.0%; Score 283.4; DB 21; Length 25509;
Best Local Similarity 57.5%; Pred. No. 1.8e-75;
Matches 528; Conservative 0; Mismatches 387; Indels 3; Gaps 1;

```
Qy     35 ccatactggcagtgtgcctgccgatgcatgcacacgcctcagatttggcaaacgatccct 94
          || ||  ||| |     ||      ||  || | |||  | || |||||  | || || |
Db  24715 CCGTAGCGGCGGCCGCACTCATACAGCCCGCCCTCGCGGCGGACTTGGCGCAAGACCCGT 24656

Qy     95 ttatccggcaggttctcgaccgtcagcatttcgaacccgacgggaaataccacctattcg 154
          | ||     |      | | || ||||| | |||||||| ||| |||||||||| ||||
Db  24655 TCATTACCGATAACGCCCAACGGCAGCACTACGAACCCGGCGGCAAATACCACCTCTTCG 24596

Qy    155 gcagcaggggggagc---ttgccnagcgcaacggccatatcggattgggaaacatacaaa 211
          ||  |  | | |      || || | |||| |||| | |||    |     |     | |
Db  24595 GCGACCCGCGCGGCAGCGTTTCCGACCGCACCGGCAAAATCAACGTCATCCAAGACTATA 24536

Qy    212 gccatcagttgggccacctgatgattcaacaggcggccgttgaaggaaatatcggctaca 271
           ||| ||| ||||| ||||| | || ||||||||   | |  | || |  |||||||||
Db  24535 CCCACCAGATGGGCAACCTGCTCATCCAACAGGCAAACATCAACGGCACAATCGGCTACC 24476

Qy    272 ttgtccgcttttccgatcacgggcacaaattccattcgcccttcgacaaccatgcctcac 331
            ||||||||||  ||||| ||| ||   ||  | ||||||||||||| ||| |
Db  24475 ACACCCGCTTTTCCGGACACGGACACGAAGAACACGCCCCCTTCGACAACCACGCCGCCG 24416

Qy    332 attccgattctgacgaagccggtagtcccgttgacggattcagcctttaccgcatccatt 391
          |   ||     || |||   || |     |  || || || | | | |||||  || | |
Db  24415 ACAGCGCGAGCGAAGAAAAAGGCAACGTTGACGAAGGCTTTACCGTATACCGGCTCAACT 24356

Qy    392 gggacggatacgaacaccatcccgccgacggctatgacgggccacagggcggcggctatc 451
          |||| ||| ||||||| |||||||||| | ||| |||||  ||  ||||||||   || |
Db  24355 GGGAAGGACACGAACATCATCCCGCCGATGCCTACGACGGCCCGAAGGGCGGCAATTACC 24296

Qy    452 ccgctcccaaaggcgcgagggatatatacagctacgacataaaaggcgttgcccaaaata 511
          ||   || |  |||||  | ||   ||||| |||  || | || |||   ||||  | ||
Db  24295 CCAAACCTACGGGCGCACGAGACGAATACACCTATCACGTCAACGGCACAGCCCGCAGTA 24236

Qy    512 tccgcctcaacctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttccaca 571
          ||   ||||| | |||||||| |||||||| | | |||||  |  |||||  || |  ||
Db  24235 TCAAACTCAATCCGACCGACACCCGCAGCATCCGGCAACGCATATCCGACAATTACAGCA 24176

Qy    572 atgccggcgctatgctgacgcaaggagtaggcgacggattcaaacgcgccacccgataca 631
          |  ||||   |   |  |  | | |  |  || |    || |       |  . |||
Db  24175 ACCTCGGCAGCAATTTCTCCGACCGCGCCGATGAAGCCAACAGAAAAATGTTCGAGCACA 24116

Qy    632 gccccgagctggacagatcgggcaatgccgccgaagccttcaacggcactgcagatatcg 691
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Db  24115 ATGCCAAGCTCGACCGCTGGGGCAACAGCATGGAGTTTATCAACGGCGTCGCCGCCGGCG 24056

Qy    692 tcaaaaacatcatcggcgcggcaggagaaattgtcggcgcaggcgatgccgtgcagggta 751
Db  24055 CGCTCAACCCCTTTATCAGCGCGGGCGAAGCCTTGGGCATAGGCGACATACTGTACGGAA 23996

Qy    752 taagcgaaggctcaaacattgctgtcatgcacggcttgggtctgctttccaccgaaaaca 811
Db  23995 CGCGCTATGCCATAGACAAAGCCGCAATGCGCAACATCGCCCCCTTGCCCGCCGAGGGCA 23936

Qy    812 agatggcgcgcatcaacgatttggcagatatggcgcaactcaaagactatgccgcagcag 871
Db  23935 AATTCGCCGTCATCGGCGGCTTGGGCAGCGTGGCGGGCTTTGAAAAGAATACGCGCGAAG 23876

Qy    872 ccatccgcgattgggcagtccaaaaccccaatgccgcacaaggcatagaagccgtcagca 931
Db  23875 CCGTTGACCGGTGGATACAGGAAAATCCCAATGCCGCCGAAACCGTCGAAGCCGTCTTCA 23816

Qy    932 atatctttatggcagcca 949
Db  23815 ACGTTGCCGCAGCAGCCA 23798


RESULT 33
AAF21607/c
ID   AAF21607 standard; DNA; 349980 BP.
XX
AC   AAF21607;
XX
DT   13-MAR-2001  (first entry)
XX
DE   Neisseria meningitidis B nucleotide sequence SEQ ID NO:108.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; immunogenic; vaccine;
KW   diagnosis; antigen; detection; infection; gene therapy; antibacterial;
KW   ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO200066791-A1.
XX
PD   09-NOV-2000.
XX
PF   08-MAR-2000; 2000WO-US05928.
XX
PR   30-APR-1999;   99US-0132068.
PR   08-OCT-1999;   99WO-US23573.
PR   28-FEB-2000; 2000GB-0004695.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Pizza M,  Hickey E,  Peterson J,  Tettelin H,  Venter JC,  Masignani V;
PI   Galeotti C,  Mora M,  Ratti G,  Scarselli M,  Scarlato V,  Rappuoli R;
PI   Frazer CM,  Grandi G;
XX
DR   WPI; 2000-647603/62.
XX
PT   Neisseria meningitidis B full length genome sequence and open reading
PT   frames are used to detect, treat and prevent Neisserial infections -
XX
PS   Claim 7; Appendix A; 692pp; English.
XX
CC   The present invention describes the full length genome of
CC   Neisseria meningitidis B (NMB). The sequences in AAF21544 and AAF21607
CC   to AAF21613 represent fragments of the NMB genomic sequence, as the
CC   sequence was too long to go in a record on its own it was split into 8
CC   sequences which overlap each other at the beginning and end of each
CC   sequence by 49980 bp (i.e. the last 49980 bp of AAF21544 is repeated at
CC   the beginning  of AAF21607, the last 49980 bp of AAF21607 are repeated at
CC   the beginning of AAF21608, and so on). AAF21545 to AAF21588 encode the
CC   Neisseria proteins given in AAB58550 to AAB58593, and AAF21589 to
CC   AAF21606 represent PCR primers which are used in the exemplification of
CC   the present invention. The NMB genome and fragments from it have
CC   antibacterial activity, and can be used in vaccines and gene therapy.
CC   Neisseria nucleic acids, proteins and/or antibodies which binds to the
CC   proteins can be used in compositions for treating or preventing infection
CC   due to Neisserial bacteria or as a diagnostic reagent for detecting the
CC   presence of Neisserial bacteria or of antibodies raised to Neisserial
CC   bacteria. Computers, computer memory, computer storage medium or computer
CC   databases can be used in a search to identify open reading frames (ORFs)
CC   or coding sequences within the NMB genome. The DNA sequences provide
CC   further opportunities to find antigenic or immunogenic proteins which are
CC   more effective in vaccines than the outer membrane proteins currently
CC   used.
XX
SQ   Sequence 349980 BP; 84410 A; 84863 C; 94187 G; 86520 T; 0 other;


  Query Match             15.0%;  Score 283.4;  DB 21;  Length 349980;
  Best Local Similarity   57.5%;  Pred. No. 8.5e-75;
  Matches  528;  Conservative    0;  Mismatches  387;  Indels    3;  Gaps    1;

Qy     35 ccatactggcagtgtgcctgccgatgcatgcacacgcctcagatttggcaaacgatccct 94
Db  77278 CCGTAGCGGCGGCCGCACTCATACAGCCCGCCCTCGCGGCGGACTTGGCGCAAGACCCGT 77219

Qy     95 ttatccggcaggttctcgaccgtcagcatttcgaacccgacgggaaataccacctattcg 154
Db  77218 TCATTACCGATAACGCCCAACGGCAGCACTACGAACCCGGCGGCAAATACCACCTCTTCG 77159

Qy    155 gcagcagggggggagc---ttgccnagcgcaacggccatatcggattgggaaacatacaaa 211
Db  77158 GCGACCCGCGCGGCAGCGTTTCCGACCGCACCGGCAAAATCAACGTCATCCAAGACTATA 77099

Qy    212 gccatcagttgggccacctgatgattcaacaggcggccgttgaaggaaatatcggctaca 271
Db  77098 CCCACCAGATGGGCAACCTGCTCATCCAACAGGCAAACATCAACGGCACAATCGGCTACC 77039

Qy    272 ttgtccgcttttccgatcacgggcacaaattccattcgcccttcgacaaccatgcctcac 331
Db  77038 ACACCCGCTTTTCCGGACACGGACACGAAGAACACGCCCCCTTCGACAACCACGCCGCCG 76979

Qy    332 attccgattctgacgaagccggtagtcccgttgacggattcagcctttaccgcatccatt 391
Db  76978 ACAGCGCGAGCGAAGAAAAAGGCAACGTTGACGAAGGCTTTACCGTATACCGGCTCAACT 76919

Qy    392 gggacggatacgaacaccatcccgccgacggctatgacgggccacagggcggcggctatc 451
Db  76918 GGGAAGGACACGAACATCATCCCGCCGATGCCTACGACGGCCCGAAGGGCGGCAATTACC 76859

Qy    452 ccgctcccaaaggcgcgagggatatatacagctacgacataaaaggcgttgcccaaaata 511
Db  76858 CCAAACCTACGGGCGCACGAGACGAATACACCTATCACGTCAACGGCACAGCCCGCAGTA 76799

Qy    512 tccgcctcaacctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttccaca 571
Db  76798 TCAAACTCAATCCGACCGACACCCGCAGCATCCGGCAACGCATATCCGACAATTACAGCA 76739

Qy    572 atgccggcgctatgctgacgcaaggagtaggcgacggattcaaacgcgccacccgataca 631
Db  76738 ACCTCGGCAGCAATTTCTCCGACCGCGCCGATGAAGCCAACAGAAAAATGTTCGAGCACA 76679

Qy    632 gccccgagctggacagatcgggcaatgccgccgaagccttcaacggcactgcagatatcg 691
Db  76678 ATGCCAAGCTCGACCGCTGGGGCAACAGCATGGAGTTTATCAACGGCGTCGCCGCCGGCG 76619

Qy    692 tcaaaaacatcatcggcgcggcaggagaaattgtcggcgcaggcgatgccgtgcagggta 751
Db  76618 CGCTCAACCCCTTTATCAGCGCGGGCGAAGCCTTGGGCATAGGCGACATACTGTACGGAA 76559

Qy    752 taagcgaaggctcaaacattgctgtcatgcacggcttgggtctgctttccaccgaaaaca 811
Db  76558 CGCGCTATGCCATAGACAAAGCCGCAATGCGCAACATCGCCCCCTTGCCCGCCGAGGGCA 76499
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```
Qy    812 agatggcgcgcatcaacgatttggcagatatggcgcaactcaaagactatgccgcagcag 871
          |  | ||   ||||  ||  ||||      |||||    |  || |  || |    | ||
Db  76498 AATTCGCCGTCATCGGCGGCTTGGGCAGCGTGGCGGGCTTTGAAAAGAATACGCGCGAAG 76439

Qy    872 ccatccgcgattgggcagtccaaaaccccaatgccgcacaaggcatagaagccgtcagca 931
          || |   |   |||  |    |||| ||||||||||  ||  | | |||||||||  ||
Db  76438 CCGTTGACCGGTGGATACAGGAAAATCCCAATGCCGCCGAAACCGTCGAAGCCGTCTTCA 76379

Qy    932 atatctttatggcagcca 949
          |  |       |||||||
Db  76378 ACGTTGCCGCAGCAGCCA 76361


RESULT  34
AAZ54262
ID   AAZ54262 standard; DNA; 1497 BP.
XX
AC   AAZ54262;
XX
DT   21-MAR-2000  (first entry)
XX
DE   Neisseria meningitidis ORF 730 partial DNA sequence SEQ ID NO:2473.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; antigen; vaccine;
KW   antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KW   antibacterial; gene therapy; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO9957280-A2.
XX
PD   11-NOV-1999.
XX
PF   30-APR-1999;   99WO-US09346.
XX
PR   01-MAY-1998;   98US-0083758.
PR   31-JUL-1998;   98US-0094869.
PR   02-SEP-1998;   98US-0098994.
PR   02-SEP-1998;   98US-0099062.
PR   09-OCT-1998;   98US-0103749.
PR   09-OCT-1998;   98US-0103794.
PR   09-OCT-1998;   98US-0103796.
PR   25-FEB-1999;   99US-0121528.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Fraser C,  Galeotti C,  Grandi G,  Hickey E,  Masignani V,  Mora M;
PI   Petersen J,  Pizza M,  Rappuoli R,  Ratti G,  Scalato E,  Scarselli M;
PI   Tettelin H,  Venter JC;
XX
DR   WPI; 2000-062150/05.
DR   P-PSDB; AAY75500.
XX
PT   Novel Neisserial polypeptides predicted to be useful antigens for
PT   vaccines and diagnostics  -
XX
PS   Claim 7; Page 1183; 1453pp; English.
XX
CC   AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941
CC   represent novel Neisseria meningitis and N. gonorrheae polynucleotides
CC   and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ55473 represent
CC   PCR primers used in the exemplification of the present invention. The
CC   polypeptides, the polynucleotides, antibodies and compositions of
CC   the invention can be used as vaccines, as diagnostic reagents, and as
CC   immunogenic compositions. The polypeptides can be used in the
CC   manufacture of medicaments for treating or preventing infection due to
CC   Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC   presence of Neisseria bacteria, or to raise antibodies. They may also
CC   be used to screen for agonists or antagonists, which may themselves
CC   have use as antibacterial agents. The polynucleotides of the invention
CC   may also be used in gene therapy protocols.
XX

SQ   Sequence 1497 BP; 456 A; 431 C; 354 G; 256 T; 0 other;


  Query Match             14.3%;  Score 269.6;  DB 21;  Length 1497;
  Best Local Similarity   56.3%;  Pred. No. 5.6e-72;
  Matches  525;  Conservative    0;  Mismatches  405;  Indels    3;  Gaps    1;

Qy     35 ccatactggcagtgtgcctgccgatgcatgcacacgcctcagatttggcaaacgatccct 94
          || ||  ||| |     ||      ||  || | |||  | || |||||  | || || |
Db     44 ccgtagcggcggccgcactcatacagcccgccctcgcggcggacttggcgcaagacccgt 103

Qy     95 ttatccggcaggttctcgaccgtcagcatttcgaacccgacgggaaataccacctattcg 154
          | ||     |      | | || ||||| | ||||||||  || ||||||||||| ||||
Db    104 tcattaccgataacgcccaacggcagcactacgaacccggaggcaaataccacctcttcg 163

Qy    155 gcagcagggggagcttg---ccnagcgcaacggccatatcggattgggaaacatacaaa 211
          ||  |  | | |      |   || | |||| ||| || |||    |     |     | |
Db    164 gcgacccgcgcggcagcgtctccgaccgcaccggtcaaatcaacgtcatccaagactata 223

Qy    212 gccatcagttgggccacctgatgattcaacaggcggccgttgaaggaaatatcggctaca 271
          ||| | | ||||| ||||| | || || |||||   | |  | || |  |||||||||
Db    224 cccaccggatgggcaacctgctcatccagcaggcaaacatcaacggcacaatcggctacc 283

Qy    272 ttgtccgcttttccgatcacgggcacaaattccattcgcccttcgacaaccatgcctcac 331
             ||||||||||  |||||  || ||   ||  | ||||||||||||||| ||| |
Db    284 acacccgcttttccggacacggatacgaagaacacgccccttcgacaaccacgccgccg 343

Qy    332 attccgattctgacgaagccggtagtcccgttgacggattcagcctttaccgcatccatt 391
          |   ||     || |||   || |     |  || || || | | | ||||  || | |
Db    344 acagcgcgagcgaagaaaaaggcaacgttgacgaaggctttaccgtataccggctcaact 403

Qy    392 gggacggatacgaacaccatcccgccgacggctatgacgggccacagggcggcggctatc 451
          |||| ||| ||||||| |||||||||| | ||| |||| ||  |||||||   || |
Db    404 gggaaggacacgaacatcatcccgccgatgcctacgacggcccgaagggcggcaattacc 463

Qy    452 ccgctcccaaaggcgcgagggatatatacagctacgacataaaaggcgttgcccaaaata 511
          ||   || |  || ||  | ||   ||||| |||  || | || |||   || |  |  |
Db    464 ccaaacctacgggtgcacgcgacgaatacacctatcacgtcaacggcacagcacgcagca 523

Qy    512 tccgcctcaacctgaccgacaaccgcagcaccggacaacggcttgccgaccgtttccaca 571
          ||   ||||| | |||||||| |||||||| | | ||||  |  |||||  || |  ||
Db    524 tcaaactcaatccgaccgacacccgcagcatccggcaacgcatatccgacaattacagca 583

Qy    572 atgccggcgctatgctgacgcaaggagtaggcgacggattcaaacgcgccacccgataca 631
          |  ||||   |  |  | |  | | |  |  || |    || |        |   |||
Db    584 acctcggcagcaatttctccgaccgcgccgatgaagccaacagaaaaatgttcgagcaca 643

Qy    632 gccccgagctggacagatcgggcaatgccgccgaagccttcaacggcactgcagatatcg 691
             || |||| ||| | | ||||||   |  ||    ||||||||  || |   ||
Db    644 atgccaagctcgaccgctggggcaacagcatggagtttatcaacggcgtcgccgccggcg 703

Qy    692 tcaaaaacatcatcggcgcggcaggagaaattgtcggcgcaggcgatgccgtgcagggta 751
             |||  | |   |  || || |||    | |||  ||||||     || | || |
Db    704 cgctcaacccctttatcagcgcgggcgaagccttgggcataggcgacatactgtacggaa 763

Qy    752 taagcgaaggctcaaacattgctgtcatgcacggcttgggtctgctttccaccgaaaaca 811
             || | | |  | |||  || |  |||| |  | | |  |   |  || ||||  ||
Db    764 cgcgctatgccatagacaaagccgcaatgcgcaacatcgccccccttgcccgccgagggca 823

Qy    812 agatggcgcgcatcaacgatttggcagatatggcgcaactcaaagactatgccgcagcag 871
          |  | ||   ||||  ||  ||||      |||||    |  || |  || |    | ||
Db    824 aattcgccgtcatcggcggcttgggcagcgtggcgggctttgaaaaaaatacgcgcgaag 883

Qy    872 ccatccgcgattgggcagtccaaaaccccaatgccgcacaaggcatagaagccgtcagca 931
          || |   |   |||  |    |||| ||||||||||  ||  | | |||||||||  ||
Db    884 ccgttgaccggtggatacaggaaaaccccaatgccgccgaaaccgtcgaagccctggtca 943

Qy    932 atatctttatggcagccatccccatcaaaggga 964
          |  || |   |  ||||    ||  ||  ||
Db    944 acgtcctgccgtttgccaaagtcaaaaacctga 976


RESULT  35
```

```
AAZ12046
ID   AAZ12046 standard; DNA; 1497 BP.
XX
AC   AAZ12046;
XX
DT   08-OCT-1999  (first entry)
XX
DE   Neisseria gonorrhoeae complete ORF29 sequence.
XX
KW   Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW   treatment; Neisseria infection; meningitis; septicaemia; gonorrhea; ss.
XX
OS   Neisseria gonorrhoeae.
XX
PN   WO9924578-A2.
XX
PD   20-MAY-1999.
XX
PF   09-OCT-1998;   98WO-IB01665.
XX
PR   01-SEP-1998;   98GB-0019016.
PR   06-NOV-1997;   97GB-0023516.
PR   14-NOV-1997;   97GB-0024190.
PR   18-NOV-1997;   97GB-0024386.
PR   27-NOV-1997;   97GB-0025158.
PR   10-DEC-1997;   97GB-0026147.
PR   14-JAN-1998;   98GB-0000759.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Grandi G,  Masignani V,  Pizza M,  Rappuoli R,  Scarlato V;
XX
DR   WPI; 1999-327407/27.
DR   P-PSDB; AAY38584.
XX
PT   Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
PT   diagnosis, treatment and prevention of infection
XX
PS   Claim 9; Page 146; 524pp; English.
XX
CC   Nucleotide sequences AAZ11972-Z12358 represent open reading frames
CC   (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode
CC   antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their
CC   fragments, their nucleic acids and antibodies are used for diagnosis,
CC   prevention (as vaccines) or treatment of Neisseria infections,
CC   such as meningitis, septicaemia and gonorrhea. Both organisms
CC   are closely related. Fragments of the nucleic acids are useful
CC   as hybridisation probes and antisense reagents.
XX
SQ   Sequence 1497 BP; 475 A; 319 C; 365 G; 338 T; 0 other;


  Query Match             6.3%;  Score 119.8;  DB 20;  Length 1497;
  Best Local Similarity   66.4%;  Pred. No. 6.5e-26;
  Matches  172;  Conservative    0;  Mismatches   87;  Indels    0;  Gaps    0;

Qy     239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
           ||| | | |   |||||||   |||||||||      ||  ||||| |  ||||| |||
Db     245 aacggacaggatttgaaggtgttatcggctatgaaacccatttttcaggacacggacacg 304

Qy     299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
           || | ||    || ||||| || ||||  ||| |   |  ||||||      |||  |
Db     305 aagtacacagtccgttcgataatcatgattcaaaaagcacttctgatttcagcggcggcg 364

Qy     359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
             | | ||| || | | ||||||   | ||| ||   || |  |||   ||||||||
Db     365 tagacggcggttttaccgtttaccaacttcatcggacagggtcggaaatacatcccgcag 424

Qy     419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
           |||| ||||||||||| || |||||||| ||||| |  ||  |||| || ||||||||||
Db     425 acggatatgacgggcctcaaggcggcggttatccggaaccacaaggggcaagggatatat 484

Qy     479 acagctacgacataaaagg 497
           ||||||| | || |||||
Db     485 acagctaccatatcaaagg 503


RESULT  36
AAZ53469
ID   AAZ53469 standard; DNA; 1497 BP.
XX
AC   AAZ53469;
XX
DT   21-MAR-2000  (first entry)
XX
DE   Neisseria gonorrheae ORF 238 partial DNA sequence SEQ ID NO:887.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; antigen; vaccine;
KW   antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KW   antibacterial; gene therapy; ds.
XX
OS   Neisseria gonorrheae.
XX
PN   WO9957280-A2.
XX
PD   11-NOV-1999.
XX
PF   30-APR-1999;   99WO-US09346.
XX
PR   01-MAY-1998;   98US-0083758.
PR   31-JUL-1998;   98US-0094869.
PR   02-SEP-1998;   98US-0098994.
PR   02-SEP-1998;   98US-0099062.
PR   09-OCT-1998;   98US-0103749.
PR   09-OCT-1998;   98US-0103794.
PR   09-OCT-1998;   98US-0103796.
PR   25-FEB-1999;   99US-0121528.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Fraser C,  Galeotti C,  Grandi G,  Hickey E,  Masignani V,  Mora M;
PI   Petersen J,  Pizza M,  Rappuoli R,  Ratti G,  Scalato E,  Scarselli M;
PI   Tettelin H,  Venter JC;
XX
DR   WPI; 2000-062150/05.
DR   P-PSDB; AAY74707.
XX
PT   Novel Neisserial polypeptides predicted to be useful antigens for
PT   vaccines and diagnostics
XX
PS   Claim 7; Page 543-544; 1453pp; English.
XX
CC   AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941
CC   represent novel Neisseria meningitis and N. gonorrheae polynucleotides
CC   and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ55473 represent
CC   PCR primers used in the exemplification of the present invention. The
CC   polypeptides, the polynucleotides, antibodies and compositions of
CC   the invention can be used as vaccines, as diagnostic reagents, and as
CC   immunogenic compositions. The polypeptides can be used in the
CC   manufacture of medicaments for treating or preventing infection due to
CC   Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC   presence of Neisseria bacteria, or to raise antibodies. They may also
CC   be used to screen for agonists or antagonists, which may themselves
CC   have use as antibacterial agents. The polynucleotides of the invention
CC   may also be used in gene therapy protocols.
XX
SQ   Sequence 1497 BP; 475 A; 319 C; 365 G; 338 T; 0 other;


  Query Match             6.3%;  Score 119.8;  DB 21;  Length 1497;
  Best Local Similarity   66.4%;  Pred. No. 6.5e-26;
  Matches  172;  Conservative    0;  Mismatches   87;  Indels    0;  Gaps    0;

Qy     239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
           ||| | | |   |||||||   |||||||||      ||  ||||| |  ||||| |||
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Db    245 aacggacaggatttgaaggtgttatcggctatgaaacccatttttcaggacacggacacg 304

Qy    299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
          || | ||    || ||||| || |||| ||| |   |  ||||||      |||  |
Db    305 aagtacacagtccgttcgataatcatgattcaaaaagcacttctgatttcagcggcggcg 364

Qy    359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
            |  | ||| || | | ||||||   | ||| ||   || |  |||   ||||||| |
Db    365 tagacggcggttttaccgtttaccaacttcatcggacagggtcggaaatacatcccgcag 424

Qy    419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
          |||| |||||||||| || |||||||| ||||| |  ||  |||| || ||||||||||
Db    425 acggatatgacgggcctcaaggcggcggttatccggaaccacaaggggcaagggatatat 484

Qy    479 acagctacgacataaaagg 497
          |||||||| | || |||||
Db    485 acagctaccatatcaaagg 503


RESULT 37
AAT70386
ID   AAT70386 standard; DNA; 3287 BP.
XX
AC   AAT70386;
XX
DT   08-DEC-1997 (first entry)
XX
DE   Neisseria adhesion proteins.
XX
KW   Neisseria gonorrhoea; adhesion; lipoprotein; OrfA; OrfI; OrfB; ss.
XX
OS   Neisseria gonorrhoeae.
XX
FH   Key             Location/Qualifiers
FT   -35_signal      63..68
FT                   /*tag= a
FT   -10_signal      78..83
FT                   /*tag= b
FT   RBS             124..128
FT                   /*tag= c
FT   CDS             136..449
FT                   /*tag= d
FT                   /label= OrfA
FT   -35_signal      514..519
FT                   /*tag= e
FT   -10_signal      534..539
FT                   /*tag= f
FT   RBS             571..577
FT                   /*tag= g
FT   CDS             583..1545
FT                   /*tag= h
FT                   /label= OrfI
FT   RBS             1573..1579
FT                   /*tag= i
FT   CDS             1585..3114
FT                   /*tag= j
FT                   /label= OrfB
XX
PN   DE19534579-A1.
XX
PD   20-MAR-1997.
XX
PF   18-SEP-1995;   95DE-1034579.
XX
PR   18-SEP-1995;   95DE-1034579.
XX
PA   (PLAC ) MAX PLANCK GES FOERDERUNG WISSENSCHAFTEN.
XX
PI   Fischer E, Maier J, Meyer TF, Rudel T, Scheuerpflug I;
XX
DR   WPI; 1997-180942/17.
DR   P-PSDB; AAW18784, AAW18785, AAW18786.
XX
PT   Nucleic acids encoding Neisseria adhesion proteins - for therapeutic
PT   and diagnostic use
XX
PS   Claim 1; Page 11-13; 20pp; German.
XX
CC   OrfA and OrfB in complexes with the protein PilC are capable of
CC   adhering to human cells.
CC   Products obtained from the DNA are useful in medicaments,
CC   diagnostic compsns. and vaccines, esp. for treatment of
CC   Neisseria gonorrhoea and N. meningitidis infections.
XX
SQ   Sequence 3287 BP; 1016 A; 741 C; 752 G; 778 T; 0 other;


  Query Match             6.3%;  Score 119.8;  DB 18;  Length 3287;
  Best Local Similarity   66.4%;  Pred. No. 1e-25;
  Matches  172;  Conservative    0;  Mismatches   87;  Indels    0;  Gaps    0;

Qy     239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
           ||| | | |   ||||||| | |||||| ||      ||  ||||| |  ||||| |||
Db    1829 aacggacagggtttgaaggcattatcggttatgaaacccatttttcaggacacggacacg 1888

Qy     299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
           || | ||    || ||||| || ||||  ||| |   |  ||||||      |||  |
Db    1889 aagtacacagtccgttcgataatcatgattcaaaaagcacttctgatttcagcggcggcg 1948

Qy     359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
             |  | ||| || | | ||||||   | ||| ||   || |  |||   ||||||| |
Db    1949 tagacggcggttttaccgtttaccaacttcatcggacagggtcggaaatacatcccgcag 2008

Qy     419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
           |||| |||||||||||| || |||||||| ||||| |  ||  |||| || ||||||||||
Db    2009 acggatatgacgggcctcaaggcggcggttatccggaaccacaaggggcaagggatatat 2068

Qy     479 acagctacgacataaaagg 497
           |||||||| | || |||||
Db    2069 acagctaccatatcaaagg 2087


RESULT 38
AAZ53471
ID   AAZ53471 standard; DNA; 1155 BP.
XX
AC   AAZ53471;
XX
DT   21-MAR-2000 (first entry)
XX
DE   Neisseria meningitidis ORF 238 partial DNA sequence SEQ ID NO:891.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; antigen; vaccine;
KW   antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KW   antibacterial; gene therapy; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO9957280-A2.
XX
PD   11-NOV-1999.
XX
PF   30-APR-1999;   99WO-US09346.
XX
PR   01-MAY-1998;   98US-0083758.
PR   31-JUL-1998;   98US-0094869.
PR   02-SEP-1998;   98US-0098994.
PR   02-SEP-1998;   98US-0099062.
PR   09-OCT-1998;   98US-0103749.
PR   09-OCT-1998;   98US-0103794.
PR   09-OCT-1998;   98US-0103796.
PR   25-FEB-1999;   99US-0121528.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
```

PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;
PI Petersen J, Pizza M, Rappuoli R, Ratti G, Scalato E, Scarselli M;
PI Tettelin H, Venter JC;
XX
DR WPI; 2000-062150/05.
DR P-PSDB; AAY74709.
XX
PT Novel Neisserial polypeptides predicted to be useful antigens for
PT vaccines and diagnostics -
XX
PS Claim 7; Page 546; 1453pp; English.
XX
CC AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941
CC represent novel Neisseria meningitis and N. gonorrheae polynucleotides
CC and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ55473 represent
CC PCR primers used in the exemplification of the present invention. The
CC polypeptides, the polynucleotides, antibodies and compositions of
CC the invention can be used as vaccines, as diagnostic reagents, and as
CC immunogenic compositions. The polypeptides can be used in the
CC manufacture of medicaments for treating or preventing infection due to
CC Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC presence of Neisseria bacteria, or to raise antibodies. They may also
CC be used to screen for agonists or antagonists, which may themselves
CC have use as antibacterial agents. The polynucleotides of the invention
CC may also be used in gene therapy protocols.
XX
SQ Sequence 1155 BP; 338 A; 267 C; 282 G; 268 T; 0 other;

Query Match 5.7%; Score 108.2; DB 21; Length 1155;
Best Local Similarity 62.3%; Pred. No. 2.1e-22;
Matches 170; Conservative 0; Mismatches 103; Indels 0; Gaps 0;

```
Qy    239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
          ||| | | |   ||||||| | |||||| ||      ||  ||||| |  || || ||
Db    245 aacggacaggatttgaaggcattatcggttatgaaacccatttttcaggacatggacatg 304

Qy    299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
          || | ||    || ||||| || ||||  ||| |   |  ||||||      |||  |
Db    305 aagtacacagtccgttcgataatcatgattcaaaaagcacttctgatttcagcggcggcg 364

Qy    359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
            |  |  || || | | ||||||   | ||| ||   || |  |||  |||||| |  |
Db    365 tagacggtggttttaccgtttaccaacttcatcggacagggtcggaaatccatccggagg 424

Qy    419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
          | || |||||||||||| || ||| |||  |||||  | |||  ||| || ||||||||||
Db    425 atggatatgacgggccgcaaggcagcgattatccgccccccggaggagcaagggatatat 484

Qy    479 acagctacgacataaaaggcgttgcccaaaata 511
          ||||||||  |  | |||||   | |   ||| |
Db    485 acagctactatgtcaaaggaacttcaacaaaaa 517
```

RESULT 39
AAZ12045
ID AAZ12045 standard; DNA; 1449 BP.
XX
AC AAZ12045;
XX
DT 08-OCT-1999 (first entry)
XX
DE Neisseria meningitidis strain A complete ORF29 sequence.
XX
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW treatment; Neisseria infection; meningitis; septicaemia; gonorrhea; ss.
XX
OS Neisseria meningitidis.
XX
PN WO9924578-A2.
XX
PD 20-MAY-1999.
XX
PF 09-OCT-1998; 98WO-IB01665.
XX
PR 01-SEP-1998; 98GB-0019016.
PR 06-NOV-1997; 97GB-0023516.
PR 14-NOV-1997; 97GB-0024190.
PR 18-NOV-1997; 97GB-0024386.
PR 27-NOV-1997; 97GB-0025158.
PR 10-DEC-1997; 97GB-0026147.
PR 14-JAN-1998; 98GB-0000759.
XX
PA (CHIR-) CHIRON SPA.
XX
PI Grandi G, Masignani V, Pizza M, Rappuoli R, Scarlato V;
XX
DR WPI; 1999-327407/27.
DR P-PSDB; AAY38582.
XX
PT Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
PT diagnosis, treatment and prevention of infection
XX
PS Claim 9; Page 144-145; 524pp; English.
XX
CC Nucleotide sequences AAZ11972-Z12358 represent open reading frames
CC (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode
CC antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their
CC fragments, their nucleic acids and antibodies are used for diagnosis,
CC prevention (as vaccines) or treatment of Neisseria infections,
CC such as meningitis, septicaemia and gonorrhea. Both organisms
CC are closely related. Fragments of the nucleic acids are useful
CC as hybridisation probes and antisense reagents.
XX
SQ Sequence 1449 BP; 445 A; 310 C; 335 G; 340 T; 19 other;

Query Match 5.6%; Score 105.2; DB 20; Length 1449;
Best Local Similarity 61.2%; Pred. No. 2e-21;
Matches 167; Conservative 0; Mismatches 106; Indels 0; Gaps 0;

```
Qy    239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
          ||| | | |   ||||||| | |||||| ||      ||  ||||| |  || || ||
Db    245 aacggacaggatttgaaggcattatcggttatgaaacccatttttcaggacatggacatg 304

Qy    299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
          || | ||    || ||||| || ||||  ||| |   |  ||||||      |||  |
Db    305 aagtacacagtccgttcgataatcatgattcaaaaagcacttctgatttcagcggcggcg 364

Qy    359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
            |  |  || || | | ||||||   | ||| ||   || |  |||  |||||| |  |
Db    365 tagacggtggttttaccgtttaccaacttcatcggacagggtcggaaatccatccggagg 424

Qy    419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
          | || |||||||||||| || ||| |||  |||||  | |||  ||| || ||||||||||
Db    425 atggatatgacgggccgcaaggcagcgattatccgccccccggaggagcaagggatatat 484

Qy    479 acagctacgacataaaaggcgttgcccaaaata 511
          |||  ||  |  | |||||   | |   ||| |
Db    485 acanntantatgtcaaaggaacttcaacaaaaa 517
```

RESULT 40
AAZ12044
ID AAZ12044 standard; DNA; 1452 BP.
XX
AC AAZ12044;
XX
DT 08-OCT-1999 (first entry)
XX
DE Neisseria meningitidis complete ORF29 sequence.
XX
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW treatment; Neisseria infection; meningitis; septicaemia; gonorrhea; ss.
XX
OS Neisseria meningitidis.

```
XX
PN   WO9924578-A2.
XX
PD   20-MAY-1999.
XX
PF   09-OCT-1998;   98WO-IB01665.
XX
PR   01-SEP-1998;   98GB-0019016.
PR   06-NOV-1997;   97GB-0023516.
PR   14-NOV-1997;   97GB-0024190.
PR   18-NOV-1997;   97GB-0024386.
PR   27-NOV-1997;   97GB-0025158.
PR   10-DEC-1997;   97GB-0026147.
PR   14-JAN-1998;   98GB-0000759.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Grandi G,  Masignani V,  Pizza M,  Rappuoli R,  Scarlato V;
XX
DR   WPI; 1999-327407/27.
DR   P-PSDB; AAY38581.
XX
PT   Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
PT   diagnosis, treatment and prevention of infection
XX
PS   Claim 9; Page 143-144; 524pp; English.
XX
CC   Nucleotide sequences AAZ11972-Z12358 represent open reading frames
CC   (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode
CC   antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their
CC   fragments, their nucleic acids and antibodies are used for diagnosis,
CC   prevention (as vaccines) or treatment of Neisseria infections,
CC   such as meningitis, septicaemia and gonorrhea. Both organisms
CC   are closely related. Fragments of the nucleic acids are useful
CC   as hybridisation probes and antisense reagents.
XX
SQ   Sequence 1452 BP; 466 A; 298 C; 332 G; 356 T; 0 other;


  Query Match             5.6%;  Score 105;  DB 20;  Length 1452;
  Best Local Similarity   61.5%;  Pred. No. 2.3e-21;
  Matches  168;  Conservative    0;  Mismatches  105;  Indels    0;  Gaps    0;

Qy    239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
          ||| | | |   |||||||   |||||| ||      ||  ||||| |  |||| ||
Db    245 aacggacagggtttgaaggtgttatcggttatgaaacccatttttcagggcacggacatg 304

Qy    299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
          || | ||    || |||||  | ||||  ||| |   |  ||||||     |||  ||
Db    305 aagtacacagtccgttcgatcatcatgattcaaaaagcacttctgatttcagcggcggtg 364

Qy    359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
            | ||| || |   ||||||   | ||| |    || |  |||  |||||| |  |
Db    365 tagacggcggttttactgtttaccaacttcatcgaacagggtcggaaatccatccggagg 424

Qy    419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
          | || ||||||||||| || ||| |||  |||||  | |||  ||| || ||||||||||
Db    425 atggatatgacgggccgcaaggcagcgattatccgccccccggaggagcaagggatatat 484

Qy    479 acagctacgacataaaaggcgttgcccaaaata 511
          |||||||  |  | |||||   | |   ||| |
Db    485 acagctattatgtcaaaggaacttcaacaaaaa 517


RESULT  41
AAZ53470
ID   AAZ53470 standard; DNA; 1452 BP.
XX
AC   AAZ53470;
XX
DT   21-MAR-2000  (first entry)
XX
DE   Neisseria meningitidis ORF 238 partial DNA sequence SEQ ID NO:889.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; antigen; vaccine;
KW   antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KW   antibacterial; gene therapy; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO9957280-A2.
XX
PD   11-NOV-1999.
XX
PF   30-APR-1999;   99WO-US09346.
XX
PR   01-MAY-1998;   98US-0083758.
PR   31-JUL-1998;   98US-0094869.
PR   02-SEP-1998;   98US-0098994.
PR   02-SEP-1998;   98US-0099062.
PR   09-OCT-1998;   98US-0103749.
PR   09-OCT-1998;   98US-0103794.
PR   09-OCT-1998;   98US-0103796.
PR   25-FEB-1999;   99US-0121528.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Fraser C,  Galeotti C,  Grandi G,  Hickey E,  Masignani V,  Mora M;
PI   Petersen J,  Pizza M,  Rappuoli R,  Ratti G,  Scalato E,  Scarselli M;
PI   Tettelin H,  Venter JC;
XX
DR   WPI; 2000-062150/05.
DR   P-PSDB; AAY74708.
XX
PT   Novel Neisserial polypeptides predicted to be useful antigens for
PT   vaccines and diagnostics  -
XX
PS   Claim 7; Page 544; 1453pp; English.
XX
CC   AAZ53015 to AAZ54536, AAZ54577 to AAZ54615, and AAY74253 to AAY75941
CC   represent novel Neisseria meningitis and N. gonorrheae polynucleotides
CC   and polypeptides. AAZ54537 to AAZ54576 and AAZ54616 to AAZ55473 represent
CC   PCR primers used in the exemplification of the present invention. The
CC   polypeptides, the polynucleotides, antibodies and compositions of
CC   the invention can be used as vaccines, as diagnostic reagents, and as
CC   immunogenic compositions. The polypeptides can be used in the
CC   manufacture of medicaments for treating or preventing infection due to
CC   Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC   presence of Neisseria bacteria, or to raise antibodies. They may also
CC   be used to screen for agonists or antagonists, which may themselves
CC   have use as antibacterial agents. The polynucleotides of the invention
CC   may also be used in gene therapy protocols.
XX
SQ   Sequence 1452 BP; 466 A; 298 C; 332 G; 356 T; 0 other;


  Query Match             5.6%;  Score 105;  DB 21;  Length 1452;
  Best Local Similarity   61.5%;  Pred. No. 2.3e-21;
  Matches  168;  Conservative    0;  Mismatches  105;  Indels    0;  Gaps    0;

Qy    239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
          ||| | | |   |||||||   |||||| ||      ||  ||||| |  ||||| ||
Db    245 aacggacagggtttgaaggtgttatcggttatgaaacccatttttcagggcacggacatg 304

Qy    299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
          || | ||    || |||||  | ||||  ||| |   |  ||||||     |||  ||
Db    305 aagtacacagtccgttcgatcatcatgattcaaaaagcacttctgatttcagcggcggtg 364

Qy    359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
            | ||| || |   ||||||   | ||| |    || |  |||  |||||| |  |
Db    365 tagacggcggttttactgtttaccaacttcatcgaacagggtcggaaatccatccggagg 424

Qy    419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
          | || ||||||||||| || ||| |||  |||||  | |||  ||| || ||||||||||
Db    425 atggatatgacgggccgcaaggcagcgattatccgccccccggaggagcaagggatatat 484
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Qy    479 acagctacgacataaaaggcgttgcccaaaata 511
          ||||||| |  | |||||  | |   ||| |
Db    485 acagctattatgtcaaaggaacttcaacaaaaa 517


RESULT  42
AAA81473
ID   AAA81473 standard; DNA; 92934 BP.
XX
AC   AAA81473;
XX
DT   04-DEC-2000  (first entry)
XX
DE   N. meningitidis partial DNA sequence gnm_21 SEQ ID NO:21.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; genome; immunogenic;
KW   antigen; vaccine; diagnosis; infection; antibacterial; identification;
KW   Meningococcus B; MenB; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO200022430-A2.
XX
PD   20-APR-2000.
XX
PF   08-OCT-1999;   99WO-US23573.
XX
PR   09-OCT-1998;   98US-0103794.
PR   30-APR-1999;   99US-0132068.
XX
PA   (CHIR ) CHIRON CORP.
XX
PI   Frazer CM,  Hickey E,  Peterson J,  Tettelin H,  Venter JC;
PI   Masignani V,  Galeotti C,  Mora M,  Ratti G,  Scarselli M,  Scarlato V;
PI   Rappuoli R,  Pizza M;
XX
DR   WPI; 2000-318079/27.
XX
PT   Isolated nucleotide sequences of Neisseria meningitidis which can be
PT   used in the diagnosis and treatment of N. meningitidis infection and
PT   other Neisserial infections, for example, N.gonorrhoea -
XX
PS   Claim 7; Page 471-498; 1760pp; English.
XX
CC   The present invention describes methods of obtaining immunogenic
CC   proteins from Neisseria genomic sequences. AAA81453 to AAA82414
CC   represent specifically claimed Neisseria meningitidis genomic DNA
CC   sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent
CC   Neisseria DNA sequences and their corresponding proteins; AAA81254 to
CC   AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the
CC   isolation of Neisseria meningitidis DNA sequences; and AAA81322 to
CC   AAA81452 represent Neisseria meningitidis MenB polynucleotide ORF
CC   sequences, which are all used in the exemplification of the present
CC   invention. The nucleic acid sequences, protein sequences, and antibodies
CC   against them, can be used in the manufacture of a composition. The
CC   composition can be used as a medicament (or in the manufacture of a
CC   medicament) for treating, preventing or diagnosing infection due to
CC   Neisserial bacteria. For example, some of the identified proteins could
CC   be components of vaccines against Meningococcus B; against all serotypes;
CC   and/or against all pathogenic Neissariae. Identification of sequences
CC   from the bacterium will also facilitate production of biological probes,
CC   particularly organism-specific probes. Attempts to make efficacious
CC   Meningococcus B vaccines have failed mainly due to antigen tolerance.
CC   Multivalent vaccines have also been tried but none have successfully
CC   overcome antigenic variability. The provision of further, complete
CC   sequences may provide an opportunity to identify secreted or surface
CC   exposed proteins that may be presumed targets for the immune system and
CC   which are not antigenically variable or at least more conserved than
CC   other more variable regions.
XX
SQ   Sequence 92934 BP; 24051 A; 24249 C; 21902 G; 22730 T; 2 other;

  Query Match             5.6%;  Score 105;  DB 21;  Length 92934;
  Best Local Similarity   61.5%;  Pred. No. 2.8e-20;
  Matches  168;  Conservative    0;  Mismatches  105;  Indels    0;  Gaps    0;

Qy    239 aacaggcggccgttgaaggaaatatcggctacattgtccgctttccgatcacgggcaca 298
          ||| | | |   |||||||   |||||| ||      ||  ||||| |  ||||| ||
Db  19272 aacggacagggtttgaaggtgttatcggttatgaaacccatttttcagggcacggacatg 19331

Qy    299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
          || | ||    || |||||  | ||||  ||| |   |  ||||||      |||  ||
Db  19332 aagtacacagtccgttcgatcatcatgattcaaaaagcacttctgatttcagcggcggtg 19391

Qy    359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
            |  | ||| || |   ||||||   | ||| |    || |  |||  |||||| |  |
Db  19392 tagacggcggttttactgtttaccaacttcatcgaacagggtcggaaatccatccggagg 19451

Qy    419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
          | || |||||||||||| || ||| |||  |||||  | |||  ||| || ||||||||||
Db  19452 atggatatgacgggccgcaaggcagcgattatccgccccccggaggagcaagggatatat 19511

Qy    479 acagctacgacataaaaggcgttgcccaaaata 511
          ||||||| |  | |||||  | |   ||| |
Db  19512 acagctattatgtcaaaggaacttcaacaaaaa 19544


RESULT  43
AAF21613
ID   AAF21613 standard; DNA; 172325 BP.
XX
AC   AAF21613;
XX
DT   13-MAR-2001  (first entry)
XX
DE   Neisseria meningitidis B nucleotide sequence SEQ ID NO:114.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; immunogenic; vaccine;
KW   diagnosis; antigen; detection; infection; gene therapy; antibacterial;
KW   ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO200066791-A1.
XX
PD   09-NOV-2000.
XX
PF   08-MAR-2000; 2000WO-US05928.
XX
PR   30-APR-1999;   99US-0132068.
PR   08-OCT-1999;   99WO-US23573.
PR   28-FEB-2000; 2000GB-0004695.
XX
PA   (CHIR ) CHIRON CORP.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Pizza M,  Hickey E,  Peterson J,  Tettelin H,  Venter JC,  Masignani V;
PI   Galeotti C,  Mora M,  Ratti G,  Scarselli M,  Scarlato V,  Rappuoli R;
PI   Frazer CM,  Grandi G;
XX
DR   WPI; 2000-647603/62.
XX
PT   Neisseria meningitidis B full length genome sequence and open reading
PT   frames are used to detect, treat and prevent Neisserial infections -
XX
PS   Claim 7; Appendix A; 692pp; English.
XX
CC   The present invention describes the full length genome of
CC   Neisseria meningitidis B (NMB). The sequences in AAF21544 and AAF21607
CC   to AAF21613 represent fragments of the NMB genomic sequence, as the
CC   sequence was too long to go in a record on its own it was split into 8
CC   sequences which overlap each other at the beginning and end of each
CC   sequence by 49980 bp (i.e. the last 49980 bp of AAF21544 is repeated at
CC   the beginning  of AAF21607, the last 49980 bp of AAF21607 are repeated at
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CC   the beginning of AAF21608, and so on). AAF21545 to AAF21588 encode the
CC   Neisseria proteins given in AAB58550 to AAB58593, and AAF21589 to
CC   AAF21606 represent PCR primers which are used in the exemplification of
CC   the present invention. The NMB genome and fragments from it have
CC   antibacterial activity, and can be used in vaccines and gene therapy.
CC   Neisseria nucleic acids, proteins and/or antibodies which binds to the
CC   proteins can be used in compositions for treating or preventing infection
CC   due to Neisserial bacteria or as a diagnostic reagent for detecting the
CC   presence of Neisserial bacteria or of antibodies raised to Neisserial
CC   bacteria. Computers, computer memory, computer storage medium or computer
CC   databases can be used in a search to identify open reading frames (ORFs)
CC   or coding sequences within the NMB genome. The DNA sequences provide
CC   further opportunities to find antigenic or immunogenic proteins which are
CC   more effective in vaccines than the outer membrane proteins currently
CC   used.
XX
SQ   Sequence 172325 BP; 43072 A; 47583 C; 41465 G; 40205 T; 0 other;


  Query Match           5.6%;  Score 105;  DB 21;  Length 172325;
  Best Local Similarity  61.5%;  Pred. No. 4e-20;
  Matches  168;  Conservative    0;  Mismatches  105;  Indels    0;  Gaps    0;

Qy     239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
           ||| | | |   |||||||   |||||| ||      ||  |||||| | |||||| ||
Db  122939 aacggacagggtttgaaggtgttatcggttatgaaacccatttttcagggcacggacatg 122998

Qy     299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
           || | ||    || |||||  | ||||  ||| |   |  ||||||     |||  ||
Db  122999 aagtacacagtccgttcgatcatcatgattcaaaaagcacttctgatttcagcggcggtg 123058

Qy     359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
             |  | ||| || |   ||||||   | ||| |    || |  |||  |||||| | |
Db  123059 tagacggcggttttactgtttaccaacttcatcgaacagggtcggaaatccatccggagg 123118

Qy     419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
           | || ||||||||||| || ||| |||  |||||  | |||  ||| || ||||||||||
Db  123119 atggatatgacgggccgcaaggcagcgattatccgccccccggaggagcaagggatatat 123178

Qy     479 acagctacgacataaaaggcgttgcccaaaata 511
           |||||||  |  | |||||   | |   ||| |
Db  123179 acagctattatgtcaaaggaacttcaacaaaaa 123211


RESULT  44
AAZ12043
ID   AAZ12043 standard; DNA; 375 BP.
XX
AC   AAZ12043;
XX
DT   08-OCT-1999  (first entry)
XX
DE   Neisseria meningitidis partial ORF29 sequence.
XX
KW   Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW   treatment; Neisseria infection; meningitis; septicaemia; gonorrhea; ss.
XX
OS   Neisseria meningitidis.
XX
PN   WO9924578-A2.
XX
PD   20-MAY-1999.
XX
PF   09-OCT-1998;   98WO-IB01665.
XX
PR   01-SEP-1998;   98GB-0019016.
PR   06-NOV-1997;   97GB-0023516.
PR   14-NOV-1997;   97GB-0024190.
PR   18-NOV-1997;   97GB-0024386.
PR   27-NOV-1997;   97GB-0025158.
PR   10-DEC-1997;   97GB-0026147.
PR   14-JAN-1998;   98GB-0000759.
XX
PA   (CHIR-) CHIRON SPA.
XX
PI   Grandi G,  Masignani V,  Pizza M,  Rappuoli R,  Scarlato V;
XX
DR   WPI; 1999-327407/27.
DR   P-PSDB; AAY38580.
XX
PT   Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
PT   diagnosis, treatment and prevention of infection
XX
PS   Claim 9; Page 143; 524pp; English.
XX
CC   Nucleotide sequences AAZ11972-Z12358 represent open reading frames
CC   (ORFs) of Neisseria meningitidis and N. gonorrhoeae which encode
CC   antigenic proteins (see AAY38499-Y38944). The antigenic proteins, their
CC   fragments, their nucleic acids and antibodies are used for diagnosis,
CC   prevention (as vaccines) or treatment of Neisseria infections,
CC   such as meningitis, septicaemia and gonorrhea. Both organisms
CC   are closely related. Fragments of the nucleic acids are useful
CC   as hybridisation probes and antisense reagents.
XX
SQ   Sequence 375 BP; 105 A; 89 C; 90 G; 90 T; 1 other;


  Query Match           5.1%;  Score 96;  DB 20;  Length 375;
  Best Local Similarity  59.3%;  Pred. No. 5.9e-19;
  Matches  162;  Conservative    0;  Mismatches  111;  Indels    0;  Gaps    0;

Qy     239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
           ||| | | |   |||||||   |||||| ||      ||  |||||  |  |||||  ||
Db      29 aacggacagggtttgaaggtgttatcggttatgaaacccatttttcagggcacggacatg 88

Qy     299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
           || | ||    || |||||  | ||||  ||| |   |  ||||||      |||  ||
Db      89 aagtacacagtccgttcgatcatcatgattcaaaaagcacttctgatttcagcggcggtg 148

Qy     359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
             |  | ||| || |   ||||||   | ||| |     | |  |||  |||||| | |
Db     149 tagacggcggttttactgtttaccaacttcatcgaacatggtcggaaatccatccggagg 208

Qy     419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
           | |  |||||||||||| || |  |     |||||  | |||  ||| || ||||||||||
Db     209 atgaatatgacgggccgcaagcagcgnattatccgccccccggaggagcaagggatatat 268

Qy     479 acagctacgacataaaaggcgttgcccaaaata 511
           |||||||  |  | |||||   | |   ||| |
Db     269 acagctattatgtcaaaggaacttcaacaaaaa 301


RESULT  45
AAA81340
ID   AAA81340 standard; DNA; 375 BP.
XX
AC   AAA81340;
XX
DT   04-DEC-2000  (first entry)
XX
DE   N. meningitidis MenB polynucleotide sequence ORF number 19.
XX
KW   Neisseria meningitidis; Neisseria gonorrheae; genome; immunogenic;
KW   antigen; vaccine; diagnosis; infection; antibacterial; identification;
KW   Meningococcus B; MenB; ds.
XX
OS   Neisseria meningitidis.
XX
PN   WO200022430-A2.
XX
PD   20-APR-2000.
XX
PF   08-OCT-1999;   99WO-US23573.
XX
PR   09-OCT-1998;   98US-0103794.
PR   30-APR-1999;   99US-0132068.
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XX
PA (CHIR) CHIRON CORP.
XX
PI Frazer CM, Hickey E, Peterson J, Tettelin H, Venter JC;
PI Masignani V, Galeotti C, Mora M, Ratti G, Scarselli M, Scarlato V;
PI Rappuoli R, Pizza M;
XX
DR WPI; 2000-318079/27.
XX
PT Isolated nucleotide sequences of Neisseria meningitidis which can be
PT used in the diagnosis and treatment of N. meningitidis infection and
PT other Neisserial infections, for example, N.gonorrhoea -
XX
PS Disclosure; Page 204; 1760pp; English.
XX
CC The present invention describes methods of obtaining immunogenic
CC proteins from Neisseria genomic sequences. AAA81453 to AAA82414
CC represent specifically claimed Neisseria meningitidis genomic DNA
CC sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent
CC Neisseria DNA sequences and their corresponding proteins; AAA81254 to
CC AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the
CC isolation of Neisseria meningitidis DNA sequences; and AAA81322 to
CC AAA81452 represent Neisseria meningitidis MenB polynucleotide ORF
CC sequences, which are all used in the exemplification of the present
CC invention. The nucleic acid sequences, protein sequences, and antibodies
CC against them, can be used in the manufacture of a composition. The
CC composition can be used as a medicament (or in the manufacture of a
CC medicament) for treating, preventing or diagnosing infection due to
CC Neisserial bacteria. For example, some of the identified proteins could
CC be components of vaccines against Meningococcus B; against all serotypes;
CC and/or against all pathogenic Neissariae. Identification of sequences
CC from the bacterium will also facilitate production of biological probes,
CC particularly organism-specific probes. Attempts to make efficacious
CC Meningococcus B vaccines have failed mainly due to antigen tolerance.
CC Multivalent vaccines have also been tried but none have successfully
CC overcome antigenic variability. The provision of further, complete
CC sequences may provide an opportunity to identify secreted or surface
CC exposed proteins that may be presumed targets for the immune system and
CC which are not antigenically variable or at least more conserved than
CC other more variable regions.
XX
SQ Sequence 375 BP; 105 A; 89 C; 90 G; 90 T; 1 other;

Query Match 5.1%; Score 96; DB 21; Length 375;
Best Local Similarity 59.3%; Pred. No. 5.9e-19;
Matches 162; Conservative 0; Mismatches 111; Indels 0; Gaps 0;

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Qy    239 aacaggcggccgttgaaggaaatatcggctacattgtccgcttttccgatcacgggcaca 298
          ||| | | |   |||||||   ||||||  ||      ||  |||||  |  ||||| ||
Db     29 aacggacagggtttgaaggtgttatcggttatgaaacccatttttcagggcacggacatg 88

Qy    299 aattccattcgcccttcgacaaccatgcctcacattccgattctgacgaagccggtagtc 358
          || | ||    || |||||  | ||||  ||| |   |  ||||||      |||  ||
Db     89 aagtacacagtccgttcgatcatcatgattcaaaaagcacttctgatttcagcggcggtg 148

Qy    359 ccgttgacggattcagcctttaccgcatccattgggacggatacgaacaccatcccgccg 418
            | | ||| || |   ||||||   | ||| |     | |  |||  |||||| |  |
Db    149 tagacggcggttttactgtttaccaacttcatcgaacatggtcggaaatccatccggagg 208

Qy    419 acggctatgacgggccacagggcggcggctatcccgctcccaaaggcgcgagggatatat 478
          | |  ||||||||||| || |  |     |||||  | |||  ||| || ||||||||||
Db    209 atgaatatgacgggccgcaagcagcgnattatccgccccccggaggagcaagggatatat 268

Qy    479 acagctacgacataaaaggcgttgcccaaaata 511
          |||||||  |  | |||||   | |   ||| |
Db    269 acagctattatgtcaaaggaacttcaacaaaaa 301
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